AS THE EDITOR SEES IT

WFO-42b walked to the gallows last month and only a few officials of the Department of Agriculture were present to shed a tear or two. Looking back, we realize that this hanging was about six months late and came only after pressure from the House Committee on Small Business,—not to mention a rumored hint from the Department of Justice to get rid of this regulation,—had been applied. That WFO-42b had become something of a hot potato in the USDA had been known previously, but it was not until the end of price controls on meats and edible fats that the Department realized that to keep the regulation on the books any longer would be a farce. They apparently foresaw that decontrol of inedible fats was the next step. Now, only full decontrol of soaps and glycerine stand in the way of sweeping the books clean. We hope that OPA has read the handwriting on the wall and already plans to complete the clean sweep.

JUMPING on the soap shortage band wagon, new non-soap detergents continue to flock to market. These soap "substitutes' in small packages for the store trade have become about as numerous as fleas on a rabbit. By dint of necessity, housewives are buying and using them. As far as we can determine, some of these new compositions are satisfactory. Most are unsatisfactory. When the soap supply situation returns to normal, many of the new products will fall by the wayside. A few will undoubtedly remain to take permanent places in the market.

To determine which types of products are meeting with favor or disfavor, housewives were questioned. Probably because soap has been the traditional detergent for generations, a preference for those non-soap products which foam or lather was found unanimous. Foamless products are not popular. Complaints that some of the new materials were hard on the hands probably stem from a high content of alkaline salts. Because the majority of the new products have been classified as unsatisfactory, most housewives still prefer soap if they can get it.

Due to the wide variation in efficiency and worth of the new soap "substitutes," the present situation is too complicated to reveal any clear-cut trend of future developments. Frankly, we feel that this present catch-penny scramble is doing much to enhance the reputation of soap as a detergent. And conversely, we believe that it might constitute the basis for a future set-back marketwise for all non-soap detergents.

FULL decontrol of soap and glycerine by OPA is the last step in the rapid sequence of developments of the past month. The proposed sliding scale price scheme for soaps based on the so-called free market for tallow and grease could hardly have been made workable. Why shortening, salad oils, cooking fats, et al, were promptly and fully decontrolled while the decontrol of soap and glycerine was originally planned to conform to a Rube Goldberg cartoon design, is difficult to say.

Obviously, soap and glycerine should have been decontrolled simultaneously with inedible oils and fats. In fact, because of their close interrelation, soaps along with all fats and oils should have been decontrolled when the wraps were taken off meats. But apparently stung by the country-wide criticism engendered by the soap shortage, OPA followed a not uncommon pattern in Washington in "taking it out" on the soapers. We have a hunch that the OPA deep "study" of the soap price problem was a lot of hocus-pocus mainly to save face. And we feel that the evi-

dence indicates they were more interested in saving face than in ending the soap famine. Their taking "under advisement" the recommendations of the Soap Industry Advisory Committee seems to bear this out.

By the time this piece reaches the reader, some other crack-pot plan to put a jockey on the soap industry may be in vogue. In the meantime, we still feel that anything short of complete decontrol could not and would not under present conditions bring soap to market quickly and in sufficient tonnage to meet and beat the present shortage, and put soap back on the store shelves within a reasonable time. Soap industry postwar problems are as yet far from solution, but at least a beginning toward that end can now really be made.

SOAP manufacturers are getting salvaged fats from the American housewife for little or nothing, turning them into scented high-priced toilet soaps and making a barrel of money. They will not make laundry soap, but are making fancy toilet soap instead, and that is the reason there is no laundry soap in the stores. The soapers could make plenty of laundry soap if they wanted to, and especially with all the salvaged fat being collected, but they don't want to. And the avaricious soap makers are fast getting rich selling toilet soap.

This is a summary of the gist of news items and editorial comments by the score which have appeared in the daily press during the past month or so. Nowhere have we read the other side of the story. Nowhere have we read that if all the fats used today in toilet soap went into laundry soap, it would not be a drop in the bucket. Nor have we read anywhere that for years laundry soaps have been the backbone of soap production and would not be scarce today if fats were in ample supply at prices which would not entail a loss in producing the soap. Nor have we read anywhere that a soaper pays the same price for salvaged fats as he pays for any other fat or grease, and that he does not get it free so that he can make fancy soap and get rich.

So numerous have been the unfair aspersions cast upon the soap industry and so thoroughly convinced has become a large segment of our population that most soapers are vultures that we feel some sort of concerted effort should be made to get the truth across to the public. The fat salvage campaign has been practically dammed out of existence. When does the industry start fighting back?

ALL in a lather over the soap shortage, a small soaper recently bespake himself to us as follows: "The yearly soap bill of the average American family is strictly small change as a cost of living factor. So why is the OPA so stubborn against decontrol of prices? The public is blowing in its dough on dollar-per-pound beef, over-priced radios, over-priced shoddy clothing, and all kinds of high-priced geegaws. And the OPA has the gall to tell us that the price line must be held. What price line? Packaged soaps are practically off the market, others are very scarce. And for the first time, I have heard of a black market in soap,—a 29-cent package of a standard brand of chips selling for one dollar."

This is the view of one soaper. There are many others who feel the same way. But they all seem to sound off privately and to each other. Just how much has been done to acquaint the public with the facts,—to tell the soap industry's side of the story,—to let them know that the soap shortage is not a plot among soapers, — that soapers want to make soap, but cannot do so,—and have been the victims of the most cockeyed economy ever foisted on the country?

NOW that election is over and a people weary of five years of regimentation, strikes and shortages have indicated in no uncertain way at the polls that they have had enough, we wonder if the demise of the regiment of regimenters in Washington will be rapid, —or will they try to hang on, try to reassure us that we need them, that without them chaos is just around the corner? After their striking success in avoiding chaos for the past year, how can we do without them?

ROSIN..

a review of production, exports, stocks and the future outlook for prices

By Mary Gaffney and Ruth Cargill

ROSIN, recently released from price control, is again free to sell at a level determined by supply and demand. Production, exports, stocks, consumption and prices of rosin are here reviewed in order to indicate the present outlook for this commodity, particularly as a soap raw material.

Production

CHART I shows production of gum and wood rosin for the crop years 1932-33 to date. The chart reveals the upward trend in wood rosin production through 1941-42. In 1941-42 and also in 1945-46 the production of wood rosin exceeded that of gum rosin.

In 1937-38 the production of gum rosin was stimulated by high prices. The 1938-39 crop was also large. Total production was over two million drums in each year, an increase of about 30 per cent over production in the years immediately preceding. A surplus of rosin resulted from these two large crops and the government imposed restrictions on new production, granted loans, etc., in order to relieve the situation. Production declined gradually through 1944-45. Last year an increase in total production was reported for the first time in seven years.

Higher production of both gum and wood rosin in 1946-47 than in 1945-46 is estimated. The estimated increase in the combined production is about 460,000 drums or 30 per cent and such increased production will have been exceeded only by the large 1937 and 1938 crops. Actual 1945-46 and estimated 1946-47 production of wood rosin is higher, in each instance, than the corresponding figure for gum rosin.

Export

SINCE about 1937, exports of rosin from the United States have declined. Following are figures for the April-March years:

	Drums
1927-28—1931-32 average	1,016,800
1932-33	871,200
1933-34	960,000
1934-35	845,600
1935-36	963,200
1936-37	879,200
1937-38	828,000
1838-39	657,225
1939-40	780,704
1940-41	423,810
1941-42	576,346
1942-43	329,136
1943-44	454,687
1944-45	215,683
1945-46	206,810
1946-47 est.	400,000

Basis actual quota first 6 months of 250,000 and estimated quota last 6 months of 150,000 drums).

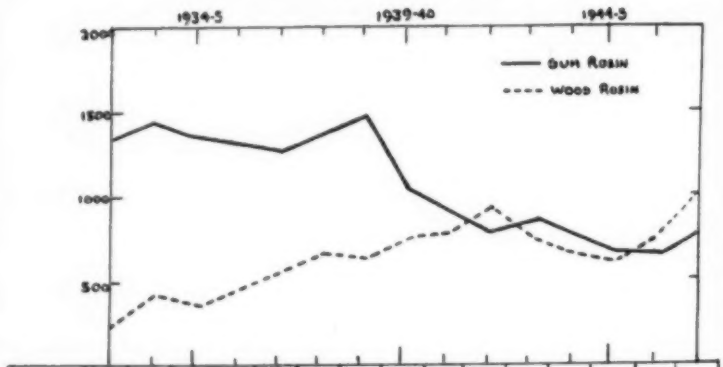
Prior to the decline, rosin exports accounted for over 50% of production; in 1945-6 exports were only 14% of production. Gum rosin has always been exported in greater volume than wood, although in 1945-46 wood rosin exports were only slightly below gum. Prior to the war we were shipping 56% of total exports to Europe, about 20% to South America and Cuba, 15% to the Orient and Australia, and the balance to Canada and miscellaneous countries. Our exports in the first quarter of 1946 went mainly to Canada, United Kingdom, Brazil and Australia. The Civilian Production Administration has established a quota of 250,000 drums for rosin exports in the 6 months April-September, 1946, and has recommended a quota of 75,000 drums in the October-December quarter. We have projected the January-March quota at the same level as the October-December quota to arrive at the annual figure of 400,000 drums in the table above. Exports of 400,000 drums would be the largest annual exports since 1943-44 but only about half our normal exports during the thirties.

The decline in our rosin exports was due to the increase in rosin production in such countries as Russia, France, Spain, Portugal and Greece. Russia, in particular, built up her industry from practically nothing to nearly 100,000 tons by 1937. A more aggressive export policy was also followed by these countries, particularly France, which cut across our markets. After these countries have recovered from the disruption to trade caused by the war, the trend away from dependence on U. S. supplies will probably be resumed.

Stocks

OUR two large gum rosin crops in 1937-38 and 1938-39 followed the downturn of our exports in 1936. The result was a piling up of stocks to almost a year's supply. In spite of re-

Chart I—Production of Rosin
April-March Crop Year
(Thousand Drums—520# Net)



Gum Rosin	1,363	1,430	1,387	1,361	1,286	1,388	1,466	1,054	939	792	869	784	692	694	750 est.
Wood Rosin	296	407	396	460	579	643	610	759	779	917	787	679	626	758	1,000 est.

Source: U.S. Dept. of Agric. Naval Stores Reports

strictions on new production, stocks did not decline to pre-1932 levels until 1944, after the war had stimulated domestic consumption to high levels. See chart II.

On March 31, 1946 stocks of both gum and wood rosin were only 388,000 drums, about 25% of last year's production, compared with a high of nearly 1,500,000 drums in 1941 and an average of about 670,000 drums in the 5 years preceding the large 1937 and 1938 crops. The proportion of rosin stocks held at industrial plants tends to be higher when total stocks are low. The proportion of total stocks held at industrial plants on March 31, 1946 was 61.4% compared with 70.9% in 1945, an average of 14.5% in 1939-41 and an average of 41% in 1933-38. Wood rosin stocks have remained consistently around 150,000 drums since the middle of 1943 while gum rosin stocks dropped from about 1,000,000 to 237,000 drums during that itme.

Domestic Consumption

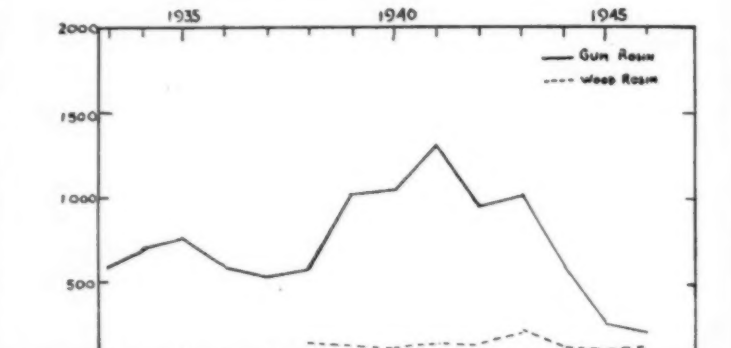
CHART III shows domestic consumption of rosin by industries. The paper manufacturing industry is the largest single consumer. Soap was the second largest consumer prior to the war and also in 1943-44 and 1944-45.

Chart III shows that domestic rosin consumption has some correlation with the FRB index of industrial production. The latest reported position of the seasonally adjusted index is at 164, lower than the average for the rosin year which closed in the Spring of 1946. Industrial production for the year 1946-1947 is estimated at least as high and probably somewhat higher than in 1945-1946 if pricing policies are more liberal and if strikes do not hold up manufacturing.

The April-March 1944-45 year marked the peak for rosin consumption in the United States. Consumption in paper was second only to consumption in the preceding year. Consumption in soap was almost as high as in 1943-44 when FDO 86 was in effect. FDO 86 required soap manufacturers to substitute rosin for 2-5% of the fats and oils in the anhydrous soap content of their products. Although FDO 86 was revoked about the middle of 1944, there was a strong demand for rosin to make yellow bar laundry soap. Sales in 1944-45 (chiefly to the Army and Navy) were the highest since 1936-37. The year 1944-45 was also marked by a 56% increase in the use of rosin in the industries comprising ester gum, synthetic resins, pharmaceuticals and chemicals manufacture. Consumption in paint, varnish and lacquer and in "other" industries also increased.

During the following year, 1945-46, M-387 was effective. This order restricted use of rosin (and intermediate products) in civilian soap to 25% of use in the corresponding 1944 quarter. Paints, varnishes, linoleum, adhesives, etc. were similarly restricted, while rubber, insecticides and disinfectants, core oil, oils and greases and pharmaceuticals were allowed 100% of 1944 use for both war and civilian purposes. Use in paper was restricted to 70% of use for all purposes in 1944. During 1945-46, as a result of M-387 restrictions, consumption of rosin in paper, soap, paint and varnish, and "other" uses declined, while consumption in synthetic resins, chemicals (including insecticides), pharmaceuticals, etc. maintained and even increased the high levels of 1944-45. These newer uses for rosin are suggested by the M-387 definition of "intermediate products," i.e., mixing and grinding vehicles containing rosin, esterified rosin

Chart II—Rosin Stocks as of March 31
(Thousand Drums—520# Net)



Gum Rosin	678	743	783	613	531	612	1,119	1,128	1,323	985	1,060	648	266	238	
Wood Rosin	–	–	–	–	–	187	178	128	177	163	224	147	122	151	

Source: U.S. Dept. of Agric. Naval Stores Reports

(ester gum), rosin modified phenolic resin, rosin modified maleic or fumaric resins, rosin modified phthalic alkyd resins, gloss oil, heat-treated rosin, stabilized rosins, polymerized rosin and metal resinates.

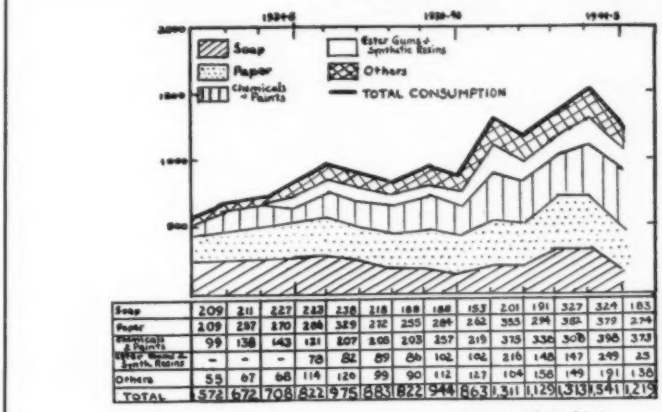
The outlook is for some increase in over-all consumption of rosin in 1946-47. The distribution of rosin between industries may vary somewhat from 1945-46 distribution. The use of rosin in paper was well established prior to the war and consumption in 1945-46 should remain at least as high as and perhaps increase somewhat from the M-387 restricted level of 1945-46, particularly if the price does not advance rapidly.

The demand for rosin to make protective coatings, to modify resins, etc. will probably continue high for at least a year or two while the coatings industry is overcoming the shortage caused by the war. The increase in synthetic resin production (See Table below) particularly non-coal-tar, has been accompanied by an expansion in the use of rosin in this field.

Two factors have contributed to the increased use of rosin in synthetic resins besides the growth of the industry itself. One is the decline in imports of the natural resins from the Belgium Congo and the Far East during the war and the other is the success with which rosin producers have adapted their products to the needs of the manufacturers of protective coatings.

The natural resins from the Philippines, Netherlands East Indies and Malaya were not available during the war and world trade is just beginning again now. Belgian Congo gum is still available at pre-war prices but the Far Eastern gums are offered at about 75% above pre-war prices. Manufacturers of protective coatings are reported to be uninterested in natural resins in anything like the quantities which came in prior to the war, even though prices become competitive with domestic rosin, because of their lack of uniformity.

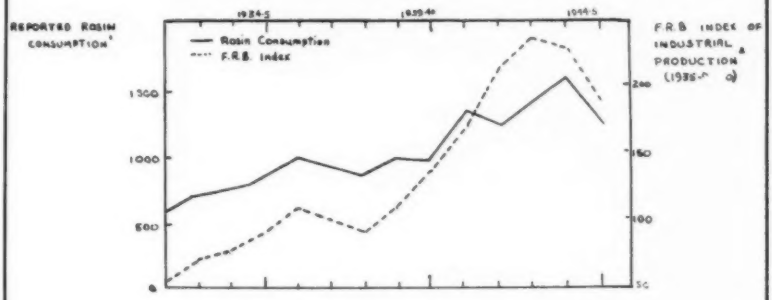
Chart III—Reported Rosin Consumption by Industries
(April-March Crop Year)
(1000 Drums*)



	1924-5	1925-6	1926-7	1927-8	1928-9	1929-30	1930-1	1931-2	1932-3	1933-4	1934-5	1935-6	1936-7	1937-8
Soap	209	211	227	243	238	218	188	186	153	201	191	327	324	183
Paper	209	297	270	288	329	272	255	284	262	355	294	382	379	274
Chemicals & Paints	99	138	143	131	207	208	203	257	219	315	330	308	398	373
Ester Gums & Synth. Resins	-	-	-	78	82	89	86	102	102	210	148	147	249	25
Others	55	67	68	114	120	99	90	112	127	104	156	149	191	136
TOTAL	572	672	708	822	975	883	822	944	863	1,311	1,129	1,313	1,541	1,219

Source: U.S. Dept. of Agric. Naval Stores Reports.

*520 pounds net.



[1] 1000 drums of 520 pounds net

[2] Monthly average of April-March rosin crop year. Adjusted for seasonal variation.

Following are pre-war and recent imports of representative natural gum resins for which U. S. rosin has served as a partial replacement:

Imports	1939 *Pounds*	1945 *Pounds*
Copal gum (Congo)	23,537,706	11,782,315
Kauri gum	1,020,632	540,454
Damar gum ...	17,334,581	.....

	1946 (4 *mos.*) *Pounds*	1946 (5 *mos.*) *Pounds*
	3,888,131	4,667,519
	120,703	120,703
	142,152	171,124

A number of new rosin products have been developed over the past few years which are of more uniform quality than rosin itself because of chemically controlled manufacture. They comprise the methyl and glycol as well as the glycerol esters of rosin,

Production of Synthetic Resins

Production	1939 *Pounds*	1942 *Pounds*	1946-1946 (*approximate*) *Pounds*
Phenolics, phthalic anhydride and other resins coal-tar resins.....	116,334,635	283,844,000	214,000,000
Urea, vinyl, abietic acid and other non-coal-tar resins	116,334,635	283,844,000	214,000,000

	1939 *Drums*	1942 *Drums*	1945-1946 (*approximate*) *Drums*
Consumption of rosin in ester gum and synthetic resins	81,513	148,263	250,835

and the sodium and potassium soaps of modified rosin. Use of rosin and its compounds has been extended to ethylcellulose plastics, nitrocellulose lacquers, asphalt, rubber, insecticides, and many other compounds.

The use of rosin in soap, as we have pointed out, has been affected by war agency regulations from time to time. First FDO 86 required the use of additional rosin in soap, then M-387, for about a year, restricted its use in civilian soaps. Amendment 9 to WFO 42b effective last March, reversed the trend again by permitting soap makers to substitute rosin as well as builders in the 10% fat reduction program for chip, flake and granulated soap established by the Department of Agriculture in July 1945.

The two types of soap in which rosin is chiefly used are yellow laundry and granulated soaps. Rosin usually constitutes about 35% of the fat charge in yellow laundry soap and about 8% in granulated soap.

The termination of Army and Navy contracts for yellow laundry soap which followed V-J Day resulted in a sharp drop in production of this type of soap. Since yellow laundry soap is a low-profit item, soap manufacturers, operating under price ceilings, have been unwilling to manufacture this soap except when its low profit was offset by the desirable feature of quota-exemption, as in sales to the Army, Navy, for export, shipments to territories, etc. A shortage of yellow laundry soap has, therefore, been felt by domestic civilian consumers for some time and two government agencies have now taken steps to alleviate this shortage.

In May OPA granted a price increase on yellow laundry soaps. OPA's purpose was stated as follows in the Statement of Considerations accompanying Amendment 8 to MPR 391:

> "Due to the historic price pattern of the soap industry, other types of soap products carry considerably higher margins of profit than yellow bar laundry soap. As a result, soap manufacturers have diverted to a serious extent the available supply of fats and oils from this product to other soap products. Yellow bar laundry soap is the cheapest of all soaps. It is used principally by those in the lower income groups, consequently this diversion must be avoided."

As a result of this action by OPA the manufacture of yellow laundry soap became more attractive from a profit standpoint than it was during the war. Price ceilings on such brands as "American Family" and "Octagon" were increased by over $1.00 per cwt.

Rosin was conservative in its price movement during the "free" period following June 30, 1946. Perhaps partly as a result, OPA decontrolled both gum and wood rosin on August 30th. Advances since that date have been moderate.

The other agency which moved in mid-'46 to relieve the domestic yellow laundry soap shortage, or at least prevent large shipments out of the continental United States was the Department of Agriculture. Beginning with the last calendar quarter of 1945, fat used in soap shipped to territories through commercial channels had been exempt from WFO 42b quotas. Prior to that time the soap had to be sold to a government agency for shipment to the territories before the fat was exempt. In the last quarter of 1945 shipments of laundry soap to territories increased to such an extent that the total exceeded shipments in the first three quarters of the year combined. Shipments in the first part of 1946 were at an even higher rate. Export and shipment figures on laundry soap do not distinguish between yellow and other types of laundry soap but we understand that exports and shipments comprise yellow laundry soap almost exclusively.* Following is a record pre-war and latest available figures:

Laundry Soap	*Exports including Lend-Lease Pounds*	*Shipments to Territories and possessions (Chiefly Puerto Rico and Virgin Islands) Pounds*
1939..	12,723,230	22,666,165
1944..	12,677,795	50,658
1945..	43,501,469	14,279,178
		(*Last qtr.*) 7,831,513
1946..	(5 *mos.*) 24,000,798	(4 *mos.*) 18,232,919

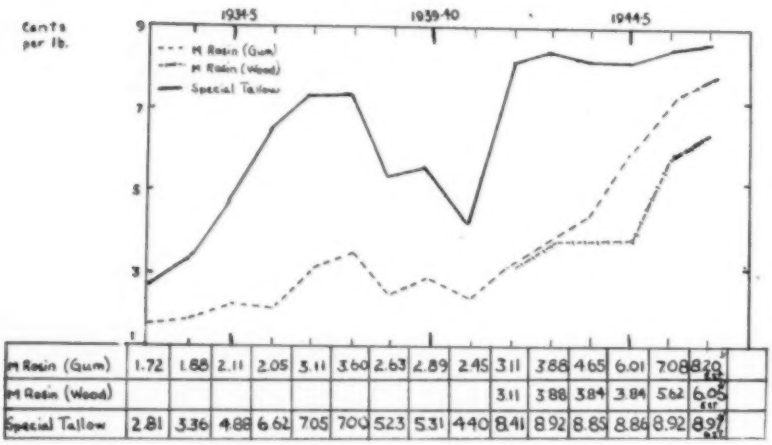
* In yellow laundry we include the Blue Mottled and Blue Streak soaps popular in the West Indies.

Amendment 10 to WFO 42b, effective July 1, 1946, changed the status of fat used in soap shipped to U. S. territories from ex-quota to quota. This change was expected to result in a sharp drop in shipments of yellow laundry soap to territories. Now that fat quotas have finally been abandoned completely, there will no longer be any reason for soap makers to seek other than normal markets for their production—as the lure of ex-quota status is gone.

(*Turn to Page* 137)

Chicago Prices—M Rosin and Special Tallow

(Monthly Average of April-March Crop Year)



M Rosin (Gum)	1.72	1.88	2.11	2.05	3.11	3.60	2.63	2.89	2.45	3.11	3.88	4.65	6.01	7.08	8.20 est.	
M Rosin (Wood)										3.11	3.88	3.84	3.84	5.62	6.05 est.	
Special Tallow	2.81	3.36	4.88	6.62	7.05	7.00	5.23	5.31	4.40	8.41	8.92	8.85	8.86	8.92	8.97 est.	

[1]Estimate of Oct. 1, 1946, prices.

POTASH SOAP MANUFACTURERS FORM NEW ASSOCIATION

HERBERT KRANICH
Heads New Association

ANDREW P. FEDERLINE
Secretary, Potash Soap Assn.

MANUFACTURERS of potash soaps have formed a new national association which will be known as the Potash Soap Association. Included among its members will be manufacturers who make liquid, soft and paste soaps for both civilian and industrial uses, which are saponified with caustic potash instead of caustic soda. Also included as associate members will be the suppliers of raw materials and containers for potash soap manufacture.

Herbert Kranich of the Kranich Soap Company, Brooklyn, was elected president of the new association.

A complete program of post-war activities for the new association is being studied and will be presented to the membership for formal approval at its first annual meeting, which will be held at the Waldorf-Astoria Hotel in New York on January 14 in the Jansen Suite. Among subjects which are receiving careful preliminary study are improvement of cost accounting methods and product certification.

Other officers elected were an eastern vice-president, Leonard J. Oppenheimer of the West Disinfecting Company, Long Island City; a western vice-president, F. J. Pollnow, Jr., of the Vestal Chemical Company, St. Louis; a treasurer, Charles B. Solly of the Harley Soap Company, Philadelphia; and a secretary-manager, Andrew P. Federline, formerly assistant manager of the Association of American Soap and Glycerine Producers, Inc.

Directors of the new association, in addition to the president, two vice-presidents and treasurer, are: J. L. Brenn of Huntington Laboratories, Huntington, Indiana; Leslie Webb of Hunnewell Soap Company, Cincinnati; A. Roy Allison of the Stevens Grease and Oil Company, Cleveland; Melvin Fuld of Fuld Brothers, Baltimore; M. J. Murphy of the Murphy-Phoenix Company, Cleveland; Charles G. Gwinner of Crystal Soap and Chemical Company, Inc., Philadelphia; Dudley J. Bachrach of the Clifton Chemical Company, New York City; and J. H. Zucker of State Chem. Co., Cleveland.

The executive committee will consist of the president, the two vice-presidents, Charles G. Gwinner and M. J. Murphy. Treasurer Charles B. Solly is chairman of the Finance Committee. Other members are Melvin Fuld, Herbert Kranich, Russell Young and J. H. Zucker.

One of the first acts of the Board of Directors of the new association was to pass a resolution urging the Office of Price Administration to decontrol maximum prices for potash soaps without further delay, as has already been requested by representatives of the organizing group through Herbert Kranich, acting as interim chairman. Russell Young, a member of OPA's official Soap and Glycerine Industry Advisory Committee, also filed a strong statement with OPA for decontrol of potash soaps. Mr. Young of the Davies-Young Soap Co., Dayton, is one of the founders of the new Potash Soap Association.

Herbert Kranich will serve as chairman of the Program Committee, which will have charge of activities for the annual meeting on January 14. Other members are Dudley J. Bachrach, A. Roy Allison, F. J. Pollnow, Jr., Leonard J. Oppenheimer, Russell Young, J. H. Zucker, and Carl E. Schaad of Chemical Manufacturing and Distributing Company, Easton, Pa., V. W. Haag, Sr. of the Haag Labs., Chicago, R. B. Hillyard of Hillyard Chem. Co., St. Joseph, Mo., H. J. Brownstein of Hysan Products Company, Chicago, and L. H. Gerson of Gerson-Stewart Corp., Cleveland.

The membership committee will be under the chairmanship of J. L. Brenn. Other members are: Charles Solly, Melvin Fuld, R. B. Hillyard, F. J. Pollnow, Jr., Leslie Webb, and J. Walter Straub of the Antiseptol Company, Inc., Chicago, Emery Emerson of John H. Breck, Inc., Springfield, Mass., L. Hockwald of the Hockwald Chemical Company, San Francisco, and J. R. Walsh of the Rochester Germicide Company, Rochester, N. Y. (*Turn to Page* 169)

S. O. SORENSEN
A.O.C.S. President

Developments in Soaps, Fats and Oils Discussed as American Oil Chemists Society Meets in Chicago Oct. 30-Nov. 1

PROGRESS in the improvement of fats and oils for wider industrial uses, together with studies of the effects of their improvement in particular fields, were reported in forty papers presented at the 20th fall meeting of the American Oil Chemists' Society in Chicago, Oct. 30 and 31 and Nov. 1. Registration for the meeting at Edgewater Beach Hotel topped 600, the largest in the Society's long history, and an indication of the steadily growing interest which the scientific world is taking in the Society's activities. As has been customary for many years, the opening session was devoted exclusively to soap and glycerine, the chairman being L. B. Parsons of Lever Bros. Co., Cambridge, Mass., and fourth vice-president of the Society.

In a paper on "Analysis of Mixtures of Glycerol, Propylene Glycol and Trimethylene Glycol," by W. D. Pohle and V. C. Mehlenbacher of Swift & Co.'s research laboratory, Chicago, procedures were described for the determination of the three named compounds in solutions containing all three, and for analysis of sweet water concentrates. Analysis is accomplished, explained Mr. Pohle, who read the paper, by taking advantage of the specific and selective action of periodic acid on polyhydric alcohols and using this in combination with an accurate method for the determination of total acetylatable material. Periodic acid, it was explained, oxidizes glycerol to formic acids and aldehydes, propylene glycol to aldehydes, and does not react with trimethylene glycol. The glycerol is determined by titration of the formic acid. Propylene glycol is calculated from total periodic acid consumed, less that required to oxidize the glycerol. The trimethylene glycol is calculated by difference, from the total acetylatable material. The methods, it was stated, are not limited to the products studied, but may be applied to other hydroxy compounds which possess similar properties.

In another paper on "New Techniques in Glycerine Distillation," W. A. Peterson, of Colgate-Palmolive-Peet Co., Jersey City, N. J., described the design and operation of a modern glycerine still. Significant steam economy, he said, is accomplished by recovery of latent heat from the glycerol vapors to generate the open steam used in the still proper and in other parts of the unit, by two-stage preheating of the feed with flash steam recovered from the closed coil condensates, by operation at low pressures (10-15 mm.), and by avoiding multiple distillation for the production of C. P. glycerine. High capacity is obtained by use of large heating surfaces in the still. High concentration of all fractions of the distillate is attained through condensation at controlled temperatures; no subsequent concentration is required. Distillates are light in color and consumption of activated carbon for bleaching is reduced. No sweet water is produced. Light fractions containing glycols are more effectively removed, thus creating an open system in which no undesirable impurities are re-cycled. Scales are provided for more accurate accounting of both the feed and distillates.

A new method for qualitative detection of small amounts of surface-active agents was presented by L. F. Hoyt of National Aniline Div., Allied Chemical & Dye Corp., Buffalo, N. Y. This method, he stated, is generally applicable to all types, *i.e.*, anionic, cationic and non-ionic. Briefly the method, he said, is based on the solubilization in aqueous solution by the surface active agent, of certain oil soluble dyes, particularly Brilliant Oil Blue B.M.A.

W. L. Semon of the B. F. Goodrich Co., Akron, O., in a paper on "Use of Fatty Acids and Their Soaps in Manufacture of Butadiene Synthetic Rubber," explained that soap of high uniform quality is required. Pure soaps made from the various pure fatty acids, however, show a great difference in value. In explaining this difference, Mr. Semon discussed the function of soap in emulsion polymerization and suggested methods for meeting requirements.

IN a paper prepared by two U. S. Dept. of Agriculture scientists, W. Howard Hunt and M. H. Newstadt, a report was made on certain improvements and specifications which have been devised for testing soap purchased by government agencies for compliance with contract specifications.

Mr. Newstadt, who presented the paper, explained that, because of the

large scale purchase program, the modified methods were designed primarily to expedite inspection, thereby avoiding delay in delivery of soap to the government. In applying the new methods, he said, recourse must always be had to official methods in instances where any doubt exists concerning compliance with specifications. He explained in detail the modified procedures, saying it was the belief that they may prove useful to others engaged in routine analysis of soap products.

A sixth paper read at the soap and glycerine session dealt with an investigation of the crystalline phases in the system sodium myristate and water which had been conducted jointly by the crystallographic laboratory of Massachusetts Institute of Technology and the research division of Lever Bros. Co., Cambridge, Mass. A new principle was developed which, it was stated, vitiates many attempts to investigate soap systems. To facilitate such study the concept of "descendent phases" was introduced, a "phase map" was obtained and a laboratory device for working soaps when investigating phase maps was described. The investigation of the phase map of the system sodium myristate—water, together with results obtained, were described.

From the Southern Regional Research Laboratory at New Orleans, which is pioneering in the use of spectroscopy in oil and fat research, T. H. Hopper, head of the analytical physical chemistry division, brought a report on "A Spectrochemical Method for Determination of Traces of Various Elements in Oils, Fats and Related Substances." Describing work done by Robert T. O'Connor, Dorothy C. Heinzelman and Merrill E. Jefferson, Mr. Hopper said that in an emission spectrochemical procedure, which was developed, the principal difficulty, namely the preparation of the sample, has been overcome by use of a magnesium nitrate method of ashing. The procedure, he suggested, should be of interest in studies on the influence of traces of metals on the stability of oils and fats

L. K. Whyte of Colgate-Palmolive-Peet Co.'s plant at Kansas City, Kans., in a paper titled "The Photometric Determination of the Color of Certain Glyceride Oils," described a method which renders possible the consistent, normal interpretation of the colors of oils from photometric data. Basic principles and various aspects of the subject were discussed and pertinent photometric data with examples of their application to samples of oil were given. Methods were offered for extending the photometric data to provide several suggested systems for the color-grading of commercial tallows and greases. The fundamentals, Mr. Whyte pointed out, are applicable to other oils, outside the scope of his paper.

"Sulfonated Oils" was the subject of P. Soderdahl of Hart & Harrington, Inc., Chicago. Describing them as "fatty oils of animal, vegetable or marine origin, rendered water miscible through treatment with sulfuric acid," Mr. Soderdahl asserted that "they are really sulfated oils for they have the C-O-S linkage, not the C-S linkage, as is present in a true sulfonate." Sulfonated oils, he continued, are stable in solutions of pH 6 or higher. They are decomposed in dilute acid solutions and very rapidly if kept hot. In the so-called highly sulfonated oils a greatly increased stability in acid is achieved. This type of oil is used only in limited quantities because of the price. Sulfonated oils are fair wetting agents and also have lubricating value. Many are good emulsifying agents for raw oils or paraffin oils. They are used largely in the tanning, textile and paper industries, with lesser amounts in many other industries, he stated.

Much of the current increase in consumption of synthetic detergents, declared Robert R. Ackley, of Onyx Oil & Chemical Co., Jersey City, N. J., has indicated a trend away from fats and oils as starting materials. However, he presented a paper on "Synthetic Detergents Derived from Fats and Oils," which dealt with detergents from fatty sources and indicated their field of usefulness, especially in the textile industry.

Reporting as chairman of the Uniform Methods and Planning Committee, J. J. Vollertson of Armour & Co., Chicago, announced the committee's approval of four changes in technique recommended by the fat analysis committee; three changes recommended by the glycerine committee, two by the color committee and one slight change offered by the refining committee.

Announcement was also made that by Dec. 1 it is expected that distribution can be started of a completely revised edition of the "Official and Tentative Methods of the American Oil Chemists Association." Revision has been in progress for three years under the editorship of V. C. Mehlenbacher, of Swift & Co.'s research laboratory. Nine separate sections will be available, covering the following subjects:

Vegetable oil source materials: Oilseed by-products; commercial fats and oils; soap and soap products; glycerine; sulfonated and sulfated oils; soap stock; reagents, supplies and apparatus; physical and chemical characteristics of oils, fats and waxes.

Indicating the scope of the work, a foreword to the section on "Soap and Soap Products" explains that it deals with "methods for sampling and chemical analysis of normal soaps and soap products and soaps containing synthetic detergents. These methods are applicable to these products in their various forms, such as cake, powdered, flake, liquid and paste. They provide standard procedures for the commercial evaluation of these materials for determining their constituents to establish conformance to specifications involved in commercial transactions."

An additional note on the significance of this service asserts that practically all trading in many oils for commercial use is conducted in an orderly manner, based on the methods developed by the various technical committees of the A.O.C.S. This work is supervised and coordinated by the Committee on Uniform Methods and Planning, of which Mr. Vollertsen has been chairman for some twenty years.

Assisting the Society's president, S. O. Sorensen of Archer-Daniels-Midland Co., Minneapolis, and other officials, was a local Chicago committee on arrangements, headed by G. A. Crapple, chief chemist and assistant director for Wilson & Co., Chicago.

The Way It Looks *in* Washington

ANDREW FEDERLINE

ALL eyes in the soap industry have been focused on Washington this month as one important development has followed another in quick succession, each of vital interest either to the entire soap industry or some important segment of it. The most recent, and to the soap industry perhaps the most important development, has been the decontrol of inedible fats and oils by the OPA. This action followed by only a few days the decontrol of edible fats. At first it had been reported that the OPA would seek to keep price controls over inedible fats, but if the OPA ever entertained such an idea they abandoned it quite rapidly when it became evident that this would simply mean a disappearance and a drying up of inedible fat supplies. The historic price spread between edible and inedible fats has been in the neighborhood of 4 and 5 cents a pound, and had inedible fats not been quickly decontrolled, after edibles were released from price ceilings, it would simply have meant that every possible pound of fat would have been pushed into the edible category, and the balance withheld from the market as long as possible.

This the OPA apparently recognized, and shortly after decontrol of edible fats and oils they followed with the same action on inedibles. They seemed hesitant, however, to make the logical extension of this reasoning and up to press time had not consented to decontrol of soaps and glycerine. On October 21 the Soap and Glycerine Industry Advisory Committee met for a full day to discuss with OPA the pricing problems confronting the soap and glycerine industry. The Advisory Committee was reported to be unanimous in its demand for early and complete decontrol. Soap makers are unanimous in declaring that, now that they are being asked to pay more than double former quotations for tallow, coconut oil, and other raw materials, and with the market levels changing on a day to day basis, the only logical course would be to let every manufacturer determine his own selling prices.

Fear has been expressed by OPA officials however, that decontrol of soap and glycerine prices along with inedible fat and oil prices, would cause finished product prices at the consumer level to rise disproportionately to the increased cost of decontrolled fats and oils. OPA officials recognize that soap manufacturers quite generally might be expected to follow the traditional industry pattern of pricing their finished products in line with the cost of replacing the raw materials used. But what bothers them, they say, is that the supply of soap at the retail level is so short that unfair advantage might be taken of the consumer in an uncontrolled soap market. They feel very much the same way about glycerine. For these reasons, therefore, they say, they have been seeking a practical method of adjusting soap and glycerine ceiling prices to fluctuating raw materials costs.

One proposal that was made a few weeks ago for gearing soap and glycerine ceiling prices to fluctuating fat and oil costs was an "escalator" adjustment similar to that applicable to butyl alcohol, which is made from grain sold in a free market. Under such a plan, a soap manufacturer would adjust his own prices at stated intervals, possibly monthly, in line with his raw material "costs." Such action would be individual and automatic, under a pre-determined formula.

One objection which soap makers voiced to this suggested pricing method was that such adjustments under customary OPA procedure would be based on acquisition rather than replacement cost of inventories consumed, and therefore would not fit the traditional pattern in the soap industry. It is believed that many soap and glycerine manufacturers could not con-

tinue to remain in business if they were compelled to price their products on any basis other than raw materials replacement cost, due to the wide fluctuations and the recent sharp advances in fat and oil prices.

Within a few days after announcement of decontrol of inedible fats, incidentally, tallow had jumped to around 18 cents per lb., with coconut oil quoted on the west coast at approximately 20 cents. Most fat and oil prices were approximately double what the previous ceilings had been. The trade in general expected some recession from these high levels, as higher prices brought stocks of fats and oils into the market, but it seems quite apparent that for a considerable period, at least, prices of finished soaps will have to be based on substantially higher raw material costs.

As we go to press, no definite decision has been announced by OPA. However, reports from Washington indicate a softening of the OPA view, and there seems to be a possibility that the decision may be for complete decontrol. The *New York Times* announced on November 4 that such action was being taken, but there has as yet been no confirmation by OPA.

TURNING to other important developments of the past month, perhaps the other most significant development was the removal of all quota restrictions on the use of animal and vegetable fats and oils in the manufacture of soaps and synthetic detergents. Along with them went the inventory limitations on industrial soaps, inedible tallow and grease, and linseed oil. Prohibitions against the use of whole domestic vegetable oils in soaps were dropped. All controls were taken off the use of high lauric acid oils. The coconut oil allocation system was first revamped and then scrapped.

Many soap manufacturers, quite understandably, were more than puzzled by the Department of Agriculture's precipitate action in revoking all War Food Orders controlling their use of fats and oils. Quite naturally they asked why, if controls were needed between V-J Day and October 18, 1946, they no longer are needed when the current fat and oil supply situation is believed to be worse than at any time during that period.

The unsatisfactory nature of the Department's explanation of its reason for decontrol seems to lend support to the widespread belief many people hold that politically it was "holding a hot potato" in retaining these controls, and that decontrol of price ceilings on fats and oils merely provided it with a needed excuse for jettisoning controls which already had been retained too long in view of the requirements of the War Mobilization and Reconversion Act. It further tends to support the rumor that the precipitate nature of its action resulted largely from recent intensive activity on the part of representatives of the House Small Business Committee, the packers and the small soda soap manufacturers. A representative of the group last mentioned is reported to have served an "ultimatum" on the Secretary of Agriculture shortly before the orders were revoked, in which he declared that drastic legal action would be initiated unless WFO-42b was revoked without further delay.

Revocation of WFO-42b means that there no longer are any quota restrictions on the use of animal or vegetable fats and oils, or their derivatives, in soaps or synthetic detergents. It also does away with such things as exemption and soap inventory certificates, which were always a headache to the soap manufacturer. At press time, however, no decision had been reached whether reports on form FDO-42-5, due for the third quarter on October 20, would have to be filed, if not already filed. Likewise no decision had been made whether a similar report would be required for the 18 days in October during which WFO-42b was in effect.

Dropping of the prohibitions against the use of whole domestic vegetable oils (cottonseed, corn, peanut and soybean) in soap manufacture resulted from revocation of WFO-29. This action may prove a boon to potash soap manufacturers who traditionally use whole oils when the price spread between them and fatty acids is not too large.

Revocation of WFO-43, together with abandonment of coconut oil allocations, may have a much more important effect on soap manufacture than many people seem to realize at the moment. WFO-43 was the order that channeled coconut oil principally into soap manufacture. When the order was revoked, the Department of Agriculture announced that effective immediately it would no longer allocate high lauric acid oils, and further that persons holding import licenses were relieved of the condition requiring them to sell in accordance with allocations made by the Department. This means that any unused allocations for coconut oil are worthless in securing preferential delivery, and that for future deliveries, not already contracted for, the soapmaker must compete with the edible trade and all other purchasers for the available supply.

The inventory limitations on inedible tallow and grease were lifted by revocation of WFO-67, and those on linseed oil by revocation of WFO-124.

TURNING back once more to the subject of price decontrol, there seem to be signs that while OPA is still resisting complete relaxation of price controls on general line soaps, it is weakening at least on some particular types of soap products. Price controls have been abandoned on liquid hair shampoos, both soap and soapless, and also on shaving soaps and creams, both lathering and brushless. Decontrol applies, incidentally, to bulk products as well as to package sales. OPA had controlled prices of these products under MPR-393, which fixed ceilings for "packaged" cosmetics, and RMPR-282, which fixed ceiling prices for "certain private label" cosmetics. In defining the term "cosmetic" both orders had stated that while soaps are not cosmetics, the ceiling prices of shaving soaps and liquid (hair) shampoos would be regulated as such. When cosmetic price control was abandoned by OPA last month by adoption of Amendment 60 to OPA Supplementary Order 129, price control over these soaps died along with the cosmetic controls.

On October 31 the OPA freed from price controls another group of soap products, scouring powders and cleansers. In this case the action was taken because the supply of these pro-

ducts was declared to be in balance with demand. The OPA defined the freed products as those containing a maximum of 5 per cent soap and a minimum of 60 per cent mineral abrasive.

A STRONG case for decontrol of potash soap ceiling prices is being made before OPA at this time. The approach is from two directions, both of which are timely, consistent and non-prejudicial one to the other. One urges OPA to decontrol potash soap prices on its own initiative. The other asks OPA to appoint a Standing Subcommittee on Potash Soaps to advise on the necessity of early decontrol of potash soap prices, particularly in view of the lifting of ceiling prices on all fats, oils and fatty acids and the freeing of domestic vegetable oils for use in soap manufacture. It is understood that OPA is considering both requests carefully, and may be expected to make an early decision. If it does not initiate decontrol of potash soap prices of its own accord, it probably will appoint the standing subcommittee so that it can take the needed formal steps.

Strong statements supporting the move to decontrol potash soap, prices have been filed by the new Potash Soap Association, by Russell Young, who is a member of the OPA Soap and Glycerine Industry Advisory Committee, and by Herbert Kranich, who was acting as Chairman of the Organizing Committee for the potash soap industry, which at that time was perfecting the organization of the new Potash Soap Association. A large number of potash soap manufacturers also filed with OPA letters requesting appointment of a Standing Subcommittee on Potash Soaps.

In regard to glycerine ceilings, OPA is fully aware of the unfortunate price status of this commodity, but up to now has announced no plan for dealing effectively with the problem. According to reports, current imports are priced at three times the domestic ceiling for refitted, and black market sales are being made at four times the ceilings domestic refiners are permitted to charge. The discrepancies

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A.A.S.G.P. Releases Potash Soap Census Data

POTASH soapers made about five million pounds more potash soap in 1945 than during 1944 according to a compilation prepared by Andrew Federline, formerly secretary of the Potash Soap Division of the Association of American Soap & Glycerine Producers, Inc., New York, and reported by the association to members late in October. Reports from some 69 manufacturers in 1945 show that 31,242,008 pounds of oils and fatty acids and 6,733,202 pounds of caustic potash were used to make 106,770,717 pounds of potash soap. The compilation points out that the reporting companies used in 1945 about four and one-half million pounds less oils and fatty acids than they did in 1944. They used more caustic potash, however, and there was a large increase (34.9%) in the pounds of paste, soft jelly base, and hard potash soaps made. The pounds of dry cleaning soaps made in 1945 declined 65.4% compared with 1944 and the pounds of liquid soaps made declined 8.2%. The compilation is offered in detail below:

RAW MATERIALS USED AND POTASH SOAP MADE BY 69 MANUFACTURERS IN 1945 COMPARED WITH 1944

(Released by the Potash Soap Division of the Association of American Soap and Glycerine Producers, Inc.)

Potash Soap Manufactured:

	Totals as Reported		*Converted into Pounds*	
	1945	1944	1945	1944
Liquid	5,731,588 Gals.	6,274,152 Gals.	48,973,498	53,330,292*
Paste, soft, jelly, base hard, etc.	55,247,840 Lbs.	40,958,989 Lbs.	55,247,840	40,958,989
Dry Cleaning Soaps	2,549,379 Lbs.	7,370,885 Lbs.	2,549,379	7,370,885
		Totals	106,770,717	101,660,116

Difference: 1945 *Compared with* 1944

	Pounds	*Percentage*
Liquid	— 4,356,794	— 8.2
Paste, soft, jelly, base hard, etc.	+14,288,851	+34.9
Dry Cleaning Soaps	— 4,821,506	—65.4
Total	+ 5,110,551	+ 5.

OILS AND FATTY ACIDS CONSUMED:	*Pounds as Reported* 1945	1944	*Difference*: 1945 *as Compared with* 1944	*Pct Increase* 1945 *over* 1944
Whole vegetable oils (lauric)	3,269,763	2,835,849	+ 433.914	+ 15.3
Whole vegetable oils (other than lauric)	3,656,827	4,612,231	— 955,404	— 20.7
Distilled vegetable fatty acids (lauric)	3,809,001	2,957,165	+ 851,836	+ 28.8
Distilled vegetable fatty acids (other than lauric)	8,478,893	7,591,012	+ 887,881	+ 11.7
Foots, all, raw and acidulated (basis 100% fatty acid content)	1,334,497	2,256,669	— 922,172	— 40.9
Tall Oil	3,512,638	3,331,794	+ 180,844	+ 5.4
Rosin	700,934	855,033	— 154,099	— 18.0
Red Oil	2,636,926	1,444,142	+1,192,784	+ 82.6
Stearic Acid	1,406,030	492,944	+ 913,086	+185.2
Other fats, oils, or fatty acids (basis whole oil or 100% fatty acid content)	2,436,499	9,370,997	—6,934,498	— 73.9
Totals	31,242,008	35,747,836	—4,505,828	— 12.6
CAUSTIC POTASH CONSUMED: (Basis 88-92% KOH)	6,733,202	6,173,287	+ 559,915	+ 9.1

* Converted from gallons into pounds on basis of 8.5 pounds to one gallon.

WETTING AGENTS

in The Modern Tannery

By Paul I. Smith

IN the manufacture of leather and fur, there are many processes involving the use of wetting agents which are capable of lowering the surface tension of aqueous solutions at high dilutions. Availability of powerful and penetrating agents, such as the higher sodium alkyl sulfates, e.g. sodium sulfate derivative of 3,9-diethyltridecanol-6, and 7-ethyl-2-methylundecanol-4, is proving a great boon to the tanner.

The essential properties of wetting agents for use in the tannery may be summarized as follows:

1. Complete solubility at working temperatures of solutions.

2. High wetting action in dilute solution as tested by some recognized method, such as use of the Herbig apparatus, which determines wetting power by measuring the amount of solution that penetrates a piece of test material within a set period.

3. Indifference of wetting agent to the presence of acids, alkalies, salts (particularly hard water and calcium salts), dyestuffs, etc., in the concentrations likely to be used in the tannery.

4. Non-staining action.

5. Neutral reaction.

6. No affinity for any particular fibre.

7. Good emulsifying action and suitability for use as an ingredient of fat liquors.

8. Low foaming when solutions are subject to mechanical agitation. In some cases it is necessary to add small quantities of anti-foaming agents, such as ethylhexanol, which repress any tendency for solutions to foam excessively.

9. Freedom from excessive percentage of dissolved salts and solvents which are occasionally added to the wetting agent to lower its viscosity.

Until a few years ago, little use was made of wetting agents in the preliminary soaking of hides and skins, including woolskins, because of the effect of hard waters, calcium salts, etc., on the efficiency of the additive. Now that wetting agents are available which possess reasonable stability in the presence of hard water, acids, alkalies, and proteins, it is possible to employ them to good advantage for the rapid soaking of all kinds of hides and skins even when chemicals like sodium sulfide or lime are used.

It is essential that there should be the maximum penetration of water through the skin structure during soaking so as to restore the proteins to as near as possible their original condition. At the same time, soaking removes dirt and foreign bodies, and by facilitating the separation of the fibres, permits liming and depilation to be carried out to a greater degree of completion.

Use of suitable wetting agents permits soaking to be carried out with the minimum of mechanical agitation and without any increase in the temperature of the solution. This is very beneficial to the stock as artificial aids tend to coarsen the grain and bring about wrinkles and other grain defects. In the case of rise in temperature of soak liquors, there is always a grave danger of this inducing an increase in bacterial activity with subsequent loss of hide substance, and also an acceleration of hydrolysis of partially broken down proteins. The aim of the tanner is to carry out his soaking as quickly as possible without the use of strong alkalies or introduction of mechanical methods likely to cause injury to the delicate grain structure.

Where hides require disinfecting, it is recommended that use should be made of wetting agents in conjunction with a disinfecting agent, such as mercuric chloride (concentration of about 500 parts per million of solution). It is important to ensure that the penetrant has no precipitating action on the disinfectant or in any way affects the strength of the disinfecting solution.

It is usual for the tanner to consult the manufacturer of the auxiliary chemical before using it in conjunction with a specific disinfectant.

Surface active agents are useful during vegetable tanning as a means of increasing the penetration of natural tannins and reducing the risk of case hardening or the too rapid tanning of the grain. In the production of all classes of leather, especially uppers where a smooth fine grain is a main selling feature, the tanner aims to increase penetration so as to effect deep and uniform tanning as opposed to surface tanning with loss of penetration. This is important where astringent tannins, such as quebracho, are used in high concentrations and where drum or paddle tanning methods are employed. Use of wetting agents may sometimes cause trouble from foaming, and here it is useful to add a small percentage of anti-foaming agent.

One of the best known uses of wetting agents in leather treatment is for the soaking back of chrome and semi-chrome stock. Prior to the use of penetrants, it was impossible to wet back chrome tanned stock, and tanners were obliged to dye the skins direct from the tan or neutralizing

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RAW MATERIALS
FOR THE SOAP AND ALLIED INDUSTRIES

TALLOW

RED OIL

CAUSTIC SODA

STEARIC ACID

CAUSTIC POTASH

COCOANUT OIL

DRUMS—TANK CARS—TANK WAGONS

ANIMAL OILS, FATS,

CHEMICALS, VEGETABLE OILS

Every raw material necessary for the manufacture of soap and allied products is carried in stock and is available at the right price for immediate delivery to your door.

ALCOHOL
AMMONIA
BLEACHING POWDER
BORAX
BICARBONATE OF SODA
CARBON TETRACHLORIDE
CALCIUM CHLORIDE
CAUSTIC SODA
CAUSTIC POTASH
DISODIUM PHOSPHATE
GLAUBER'S SALTS
GLYCERINE
METASILICATE
OXALIC ACID
POTASSIUM CARBONATE
SAL AMMONIAC
SALT
SAL SODA
SILICATE OF SODA
SODA ASH
TRISODIUM PHOSPHATE
CASTOR OIL
COCOANUT OIL
CORN OIL
COTTONSEED OIL
LARD OIL
NEATSFOOT OIL
OLEIC ACID-RED OIL
OLIVE OIL
OLIVE OIL FOOTS
PALM OIL
PALM KERNEL OIL
PEANUT OIL
RAPESEED OIL
ROSIN
SALAD OIL
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EASTERN INDUSTRIES DIVISION
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TRADE NEWS. . . .

Ask Soap Price Decontrol

Removal of price controls on inedible fats and oils, and on soaps and glycerine as well, was recommended unanimously by the OPA Soap Industry Advisory Committee, at a meeting in Washington, October 21. At this meeting OPA officials took the stand that even should price ceilings be lifted on inedible fats as well, (an action which has now been taken) they would continue to oppose the decontrol of soap and glycerine prices. They offered the alternative suggestion that a formula be worked out to allow for an advance in soap prices geared to the advance in oil and fats, but committee members were unanimous in their demand for complete decontrol of soaps and glycerine. OPA officials indicated that they would vigorously oppose decontrol of soaps until supplies are more adequate.

Leo Peck to Be Married

The marriage of Leo G. Peck, Peck's Products Co., St. Louis, and Beverley Lucille Schlueter of Kirkwood, will take place in November. The bride-elect is a graduate of Mary Institute and Bradford (Mass.) Junior College. Mr. Peck, an alumnus of University of Missouri, spent five years in the army, two of which were in Europe, and was released as a Major.

Announce "Sweater Suds"

Johnson Laboratories, Chicago, is using newspaper space to announce a new product, "Sweater Suds," compounded especially for use on blankets, sweaters and all fine woolen goods. An 18 oz. carton retails for 25 cents.

Deupree Heads War Buying

In a move to vest final authority over Army and Navy buying in a civilian, President Truman recently appointed Richard R. Deupree as executive chairman of the Army and Navy Munitions Board. Mr. Deupree, president of Procter & Gamble Co., Cincinnati, stated that he is specifically

R. R. DEUPREE

charged with the responsibility for making final decision in matters pertaining to the allocation of joint procurement responsibility between the Army and Navy. The Munitions board, in addition to integrating military procurement, has been arranging for stockpiles of strategic materials and planning for industrial decentralization and underground plant construction.

Eddie Joins Koch's Tea

Roland Eddie formerly general city sales manager for the J. R. Watkins Co., Winona, Minn., has resigned from that position to become associated with the sales department of Dr. Koch's Vegetable Tea Co., also of Winona.

Colgate Engineer Dies

Reinee M. Quist, an engineer with Colgate-Palmolive-Peet Co., Jersey City, died October 20th in Kansas City after a brief illness while on a business trip. Born in Guttenberg, Sweden, thirty-nine years ago, Mr. Quist was graduated from Brooklyn Polytechnic Institute.

Asks Soap Trust Probe

E. O. Gillam of Gillam Soap Works, Fort Worth, Texas, who has been active in seeking modification or revocation of government controls on use of fats and oils in soap making, has advised a representative of *Soap & Sanitary Chemicals* that on October 11 he filed with Attorney General Clark a request that the Anti-Trust Division of the Department of Justice immediately institute a formal investigation to determine if the retention of WFO 42b (revoked last month) was due to any actions which would constitute restraint of trade, unfair trade practices or other violations of the Sherman anti-trust law, the Robinson-Patman act or the Clayton act. He also asked for dissolution of the Association of American Soap and Glycerine Producers on grounds of monopoly and restraint of trade.

Commenting on the action of the Department of Agriculture in revoking its orders dealing with use of fats and oils, particularly WFO 42b, Mr. Gillam predicted that this action would give small soap makers a better opportunity to expand their activities, and that it would quickly correct the laundry soap shortage. In his own case, he indicated, he can now proceed on plans for a $250,000 plant expansion program which he has held in abeyance pending revocation of the fat use quotas.

Manhattan Sponsors Drama

Manhattan Soap Co., New York, is sponsoring a new radio drama "Barry Cameron," which is scheduled for each day, Monday through Friday, 2:45-3:00 P.M., starting November 18th, over CBS network.

Rug Cleaners Convention

The second annual convention of the National Institute of Rug Cleaners, New York, will be held January 20th, 21st, and 22nd, 1947, at the Palm Beach Biltmore Hotel, Palm Beach.

Alfred D. McKelvy Co., New York, announce a new "Seaforth" Christmas set wrapped in heavy foil paper with diagonal stripes of red and silver, and green and gold. The five dollar set illustrated contains shaving mug, lotion, talc, hairdressing and three cakes of men's soap, wrapped in silver and red. A larger set, at seven dollars, contains the above-mentioned items plus cologne and deodorant and is wrapped in gold and green.

Western Chemical Charged

Western Chemical Manufacturing Co., Chicago, and its president, John W. Glasier, were charged with the illegal use of 1,250,000 pounds of fats and oils for the manufacture of soap and soap products in excess of authorized quotas. Charges were filed in the U. S. district court in Chicago, October 1st. Four counts of violations of the War Food Order were charged against the company and 11 against Glasier. Conviction may result in maximum fines of $10,000 and one year's imprisonment or both on each count.

Du Pont Detergents Expands

Construction of a $107,500 factory at Deepwater, N. J., by E. I. du Pont de Nemours Corp., for the production of a synthetic organic detergent, "MP-189," was approved by the production division last month. Du Pont states that the plant will be capable of making 3,000,000 pounds a month. The company plans to install $500,000 worth of processing equipment, following CPA approval.

Chiris Appoints De Lamar

F. E. Shoninger, president of Antoine Chiris Co., New York, has announced the appointment of J. H. De Lamar & Sons, Chicago, as Chiris representatives in Chicago and the Middle West. The House of De Lamar represented Chiris actively before the war. In view of the increasingly large deliveries of French raw materials which Chiris is now receiving from abroad coupled with the enlargement of their New York laboratories, they have decided to renew their sales activities in the Middle West through the De Lamar appointment.

New H. & P. Soap Factory

The opening of a second new soap company in Jefferson, Texas has been reported. The new H. and P. Soap Company's factory is expected to turn out 60,000 bars of soap daily. W. Dark, B. S. Pollan, and Waylon Henderson are the operators. The first soap factory was recently opened by Thomas Hopkins of Longview, Texas.

OPA Changes Price Basis

Individual adjustments in the ceiling prices of household soaps and cleansers will be determined on a more liberal basis for manufacturers, the OPA announced in mid-October. This action, amendment 9 to Max. Price Reg. 391, permits the use of current indirect factory, administrative, and selling costs in determining the amount of an adjustment. Previously, the use of the lower of either current indirect costs or those existing in 1942 was mandatory. OPA said that the price provisions in effect for new size packs of soap that were previously required by War Production Board order will continue in effect for any new size packs that the industry may continue using even though the WPB order has recently been rescinded.

Soap Exports to Porto Rico

We have been advised by Pedro Grau, Porto Rico importer and exporter that laundry soap is still being exported there from U. S. in quantities far larger than local consumption can handle and that it appears the practice will continue.

This was a subject of controversy sometime ago when it was pointed out that almost 32,000,000 pounds of laundry soap had been exported to Porto Rico by the end of August 1946 whereas the annual laundry soap consumption was approximately 20,000,000 pounds.

The Maritime Register of the Chamber of Commerce of Porto Rico statistics show that during August, 1,740,300 pounds of laundry soap were sent there, 532,300 pounds by John T. Stanley Co., New York; 434,000 pounds by Colgate-Palmolive-Peet Co., Jersey City; 294,400 pounds by Newell Gutradt Co., San Francisco; 241,100 pounds by Swift & Co., Chicago; 183,000 pounds by Gillam Soap Works, Fort Worth; and 55,300 pounds by Armour & Co., Chicago.

Kinner Products New Plant

The near completion of a new plant on a four and one-half acre plot outside of Columbus was recently reported by R. E. Kinner, president of Kinner Products Co., Pataskala, Ohio, manufacturers of liquid glass cleaners for banks and theatres. The new layout will provide 12,000 cubic feet inside space for the present and will allow for considerable expansion when conditions again become normal.

Peterson Joins Baker

Dr. Willard D. Peterson was recently appointed associate director of the organic research division of the J. T. Baker Chemical Company, Phillipsburg, N. J., according to a company announcement. He will be connected with development work. Dr. Peterson received his B.S. degree at Iowa State and his Ph.D. at Harvard. He has been associated with the synthetic organic chemicals field for many years having been a member of the staff at Eastman Kodak Co. and at General Aniline and Film Corporation.

Fat Salvage Declines

The amount of fat salvage throughout the nation during the first nine months of 1946 was 103,920,000 pounds, a decline from the 114,233,000 pounds collected during the same period in 1945. During July and August of this year, collections fell off about 8 per cent and 12 per cent respectively from the corresponding monthly salvage of last year. In September, collections were down about 20 per cent from the September 1945 figure and amounted to only 6,428,000 pounds.

According to the fourth annual report of the American Fat Salvage Committee, the government - industry fat salvage program in four years of operations, August 1942 through July 1946, has resulted in collection of 694,913,000 pounds of fats. American homes saved about 74 per cent of this and the armed forces contributed about 26 per cent. Fat salvage has provided about 10.2 per cent of the total U. S. domestic production of inedible tallow and grease at an out-of-pocket cost of $0.0074 per pound of salvaged fat. The current decline in salvage was expected as there is always a slump in the amount of fat salvageable during the summer and in view of fact that salvage on the part of the armed forces is not what it was during the war. The biggest factor contributing to the decline, according to the committee, has been the shortage of meat. Strikes have also offered transportation difficulties. Fat salvage rates were expected to swing upward during the fall months, according to the committee.

Shave Cream Trucking Rate

A considerably higher trucking rate for shave creams may result if the recommendation of the National Classification Board of the American Trucking Association that shaving cream be removed from the soap classification and placed under the toilet preparation class is carried out. The change was opposed by Joseph C. Colquitt, chairman of the Classification Board, who stated that increased rates would then be applicable to all shaving preparations including those that are actually soap and would meet widespread resistance resulting in a probable suspension by the Interstate Commerce Commission. He further stated that soap products should be rated as soap and toilet preparations as such, and that the shipper should state the exact nature of the commodity being shipped.

Addresses Laundry Men

Donald E. Tuttle of the technical staff of Procter & Gamble Co., Cincinnati, discussed "Modern Textiles—Their Processing," at the convention of the National Association of Institutional Laundry Managers in Chicago early last month. Production problems, plant layout and employee relations were among other topics considered at the meeting and the program also included a bus trip to the American Institute of Laundering at Joliet, Ill.

'Cinderellas' Visit Givaudan

On October 31st, Givaudan-Delawanna, Inc., New York, were hosts to four young lady "Cinderellas" from different parts of the country who were taken on a series of tours to different places of interest in and around New York City as guests of Cinderella Inc., radio program of Columbia Broadcasting System. At the Givaudan-Delawanna laboratories, they were shown raw materials, natural and synthetic, that are used in perfumery, the library of finished odors, and demonstrations were given in perfume-making as well as laboratory scale manufacture of soap and cosmetics.

USDA Checks Tallow Stocks

A letter requesting inventory information was recently sent out to all producers of inedible tallow and grease by T. P. Lydon, Administrator of WFO 67, Fats and Oils Branch of USDA. The department is interested in obtaining from each producer the total production of inedible tallow and grease during the base period of the order (the last six months of 1944); the maximum amount calculated as permissible inventory under the order; the classification that the party might fall within – dealer, manufacturer, or producer; inventory of inedible tallow and grease on each of the following dates: July 1, 1946, August 1, 1946, September 1, 1946, and October 1, 1946; and production of inedible tallow and grease during each of the following months: July 1946, August 1946, September 1946.

Carbide Office in Toronto

Carbide and Carbon Chemicals, Limited, Toronto, is now handling the marketing in the Dominion of Canada of the synthetic organic chemicals produced by Carbide and Carbon Chemicals Corporation, New York. Both companies are units of Union Carbide and Carbon Corporation of New York. A new sales office was opened at Toronto, on September 25, and George D. Garrett, Jr. has been appointed sales manager of the chemicals division of Carbide and Carbon Chemicals, Limited. Warehouse stocks are maintained in Toronto and Montreal.

The toilet kits pictured below, offered by Roycemore Toiletries, Chicago, should stimulate considerable interest among young lads. The first gift item, "Big League Triple Kit," contains a baseball mit replica in soap, flanked by two-ounce bottles of liquid shampoo and hairgroom. Retail price is $1.25. The "Jr. Sheriff Clean-up Kit" contains a "six-shooter" fashioned in soap, and retails for 60 cents.

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Amsco Industries, Freeport, Long Island, report the use of plastic screens for drying soap. In the illustration, liquefied and aerated soap is spread on trays of natural color "Lumite" screen before being placed in a drying cabinet. Amsco officials say the life of the screens is considerably extended because the plastic resists corrosion and rust and does not become brittle. In addition, there is no danger of the color from one batch being imparted to another. The plastic screens are a product of Chicopee Manufacturing Co., New York.

Luckman Addresses S. M. I.

Charles Luckman, president of Lever Brothers Co., Cambridge, closed the five day convention of the Super Market Institute, Inc., at the Stevens Hotel, Chicago, November 7th, with an address titled "Let's Build for Tomorrow." He discussed the important place supermarkets hold in the scheme of distribution and elaborated on the ideal of properly directed mass production and distribution.

Soapers In Legal Trouble

Two soapers ran afoul of regulations during the past month. Thomas E. Hill and Norman J. Berkley, partners in the Continental Chemical Co., Sacramento, were fined $9,000 for illegally using fats and oils to manufacture granulated soap. Federal Judge A. F. St. Sure handed down the sentence after the two men were found guilty of using 666,000 pounds of fat without having a quota. In the second case, the Samuel Halaby Corporation, Buffalo manufacturers of soap, were issued a temporary injunction by Federal Judge John Knight requiring them to comply with the government fats and oil quota. The company was accused of exceeding the WFA oil and fat quotas by 2,852,876 pounds between Oct. 1st, 1944 and Sept. 30th of this year. The quota regularly allotted the company was 120,000 pounds.

Austria Gets British Soap

The British Military Government recently placed at the disposal of Austrian authorities more than 1,200 tons of soap from Army sources, according to September reports from the foreign press. This soap, in addition to the recent UNRRA delivery, will form the next six months' supply for Austria. The soap will be treated by the Austrian chemical industry by combining it with Austrian kaolin, making a soap of uniform quality with a 25 per cent fat content.

Huntley, Ltd. Formed

The formation of a new corporation known as Huntley Ltd. has been reported. The organization, headed by Woodrow H. Sporn, will manufacture a new line of men's toiletries under the name of "Raffia," and have offices in London and New York.

Copra Exports Up

Copra exports from the Philippine Commonwealth have exceeded expectation in recent months, and total shipments for 1946 probably will reach or possibly exceed 500,000 short tons and approach the prewar level, according to the U. S. Department of Agriculture.

Estimates received by the Department's office of foreign agricultural relations indicate a probable production of Philippine copra from September through December at about 65,000 tons monthly, but forecasts some decline in early 1947, reflecting the end of the major harvest and the ripening of a smaller crop of nuts during the dry season. Exports in 1947 are forecast at between 45,000 and 65,000 tons per month, allowing for copra used in domestic crushing.

Factors causing recent rapid improvement in copra production and export have included attractive prices, declining cost and availability of labor, and a gradual trend toward economic stability.

Indian Girl At Sutho Suds

One of the group of girls who work at the Indianapolis, Ind., plant of Sutho Suds, Inc., is a young lady from Bengal, India. Miss Onime Stella Biswas, topflight Indian woman leader and one of the few women officials in the government of India, is the administrative officer in the chief minister's department of the Bengal secretariat. The purpose of her visit to the U. S. is to learn American methods of merchandising and to study woman's part in industry. Her choice of Sutho Suds, Inc. was a likely one for her purpose because the company is headed by a woman.

Malmstrom Advances Goode

Steven T. Goode has been appointed general manager of the Chicago office of N. I. Malmstrom & Co., New York, processors of wool fat and producers of lanolin. He joined the Chicago sales staff in 1945 following an absence of three years during which time he saw active duty with the Army Air Force in Europe as a pilot and bombardier.

U·S· Likes Soap that SUDS

Of course Castile soap is fine. It practically sets the standards for soap purity. It's swell for babies. But Mr. and Mrs. America (your customers) want soaps that give rich, foamy suds in liquid shampoos, liquid soaps, soaps, etc. If a soap lathers freely, it's swell.

Do you want your soap to lather freely . . . sell and repeat sales rapidly? Use low impurity SOLVAY Caustic Potash to saponify your fats or oils. Then your soap will give off plenty of suds . . . and you're making customers and new profits.

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SOLVAY

Soap Shortage Explained

Within the past month, and prior to announcement by the USDA of the termination of fat quotas, the Association of American Soap & Glycerine Producers, released to the press and radio the following statement dealing with the current shortage of soap:

The members of the Association of American Soap and Glycerine Producers are addressing this statement to their chief customer, the American housewife, because we want her to know the true reasons for the present serious shortage of soap. At the same time we want to assure her that we are doing our best to make, for her use, all the soap we can.

Chiefly to blame for your soap troubles at the moment is the scarcity of meat. This directly affects the soapmaker because our main source of fat is the tallow which is a by-product of meat production.

Since the beginning of the war we in the soap industry have been required by the Government to reduce our production of soap below pre-war level. Today we are permitted to use in making household soap only about three-quarters (78 per cent) of the amount of fats and oils we used for this purpose before the war. But at the present time most of us are not able to obtain even this amount of fats and oils owing to the scarcity of these essential materials.

Shortages of fats are due to many causes, for none of which the soap industry is responsible. In recent weeks, according to government reports, only a small fraction of the normal supply of meat animals were sent to market. Moreover, thousands of tons of tallow and other fats which under normal conditions would have gone into the manufacture of soap, are lost in black markets.

Another reason for the shortage is that the amounts of imported fats and oils which the soapmaker is allowed to use in normal times are still substantially below pre-war levels.

While the production of soap has declined, there are more soap users now than ever before. Our population is up nearly 10 millions over 1940.

In addition, some 11 million men and women in the armed services who during the war were supplied with soap outside the civilian quota, are now back in civilian life. Since there has been no corresponding increase in the quota of fats allowed by the government for civilian soap, the per capita soap allowance in this country has steadily gone down.

We look for no immediate improvement in the soap supply situation until the present fat shortage is relieved.

There are two things which you housewives can do to help. One is to keep up the salvage of used kitchen fats. During the war you augmented our soap supply in this way fully 10 per cent. We urge you to continue this salvage because never—not even during the war years—were fats to make soap so badly needed as they are now. And, secondly, we repeat and emphasize the plea we have made almost from the beginning of the war—Don't waste soap! No one should use more than the minimum amount required for any cleaning or washing job.

We, the soapmakers of America, pledge our best efforts to give you more soap just as soon as the present shortages of soapmaking fats are relieved. Please help us, and help yourselves, by salvaging your used kitchen fats and by using what soap you have as economically as possible.

Frank B. Shields Dies

Frank Brown Shields, founder, president, and general manager of Barbasol Company, Indianapolis, died Oct. 15th, at the age of 62. Born in Seymour, Indiana, he received his degree from Massachusetts Institute of Technology and taught chemistry there until 1909 when he became research chemist for the General Electric company. Later he joined the Smethport Extract company and then went to the National Processing Company, becoming its treasurer and general manager. In 1921 he founded the Barbasol Company. Mr. Shields was a director of the Tefra Company, president of Bost, Inc., Bost Tooth Paste Corporation, and B. & B. Bottlers; and board chairman of Primrose House, Inc., New York.

Dillon T.R.I. Research Head

The appointment of Dr. John H. Dillon as Director of Research for the Textile Research Institute, Inc., New York, with research laboratories in Princeton, N. J., and for the Textile Foundation, was announced by those organizations.

Penick Appoints Hagelin

Roy W. Hagelin was recently appointed assistant sales manager of essential oils, aromatic chemicals, perfumes, and food flavor materials by S. B. Penick & Co., New York, manufacturers of essential oils and pharmaceuticals.

Bobrick Corporation Moves

Bobrick Manufacturing Corporation, makers of soap dispensers, have announced a change of address to 1839 Blake Ave., Los Angeles 26, Calif.

Less Soda Ash For Soapers

That industrial consumers of soda ash including soapers will have to further tighten their belts until basic reconversion materials production meets demand was the joint opinion of the CPA and the Soda Ash Industry Advisory Committee at a recent meeting between CPA officials and the industry. The soda ash producers were told to voluntarily increase shipments of soda ash by more than 50 per cent to aluminum manufacturers or the government would make them do it.

Making it clear that production officials now regard greater output of aluminum as the only short-range solution to reconversion bottlenecks, CPA asked that soda ash producers supply at least 182,000 tons a year to the aluminum industry. At present, soda ash is being delivered to aluminum producers at an annual rate of 110,000 tons.

Expansion of the nation's soda ash output by 450 metric tons a day and increased production of synthetic detergents will eventually result from construction and additions of manufacturing facilities approved recently by the Civilian Production Administration.

Slated to begin in November are additions to the Detroit soda ash plant of the Solvay Process Co., designed to boost present output from the present rate of 1,750 metric tons to 1,950 metric tons a day.

Wyandotte Chemical Co., will add $450,000 of new construction at its north and south soda ash works at Wyandotte, Mich. Construction, which will begin this month, will increase output at the north plant by 250 tons daily.

Wagner Leaves Watkins

Philip Wagner, Oakland manager of the J. R. Watkins Co., Winona, Minn., is reported to have resigned his position effective January 1st, 1947. Mr. Wagner has not yet announced his future plans.

Packers Names Round

Packers Tar Soap, Inc., Mystic, Conn., has recently named Howard S. Round director of chain store sales.

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NEW TRADE MARKS

The following trade-marks were published in the October issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Mark Applications

AEROL—This in upper and lower case, open, script letters for general purpose, soapless powdered cleanser having a petroleum base. Filed Sept. 17, 1945 by Anderson Chemical Co., Litchfield, Minn. Claims use since July 30, 1945.

PYNOL—This in upper case, bold letters adjacent to a right angle design, the angle of which is solid and along whose hypotenuse is a pattern formed by four pine trees for soap. Filed Jan. 3, 1946 by Pynol Co., Quincy, Ill. Claims use since Nov. 2, 1936.

STAN-WICK—This in upper and lower case letters for deodorant. Filed April 26, 1945 by Stanley Home Products, Inc., Springfield, Mass. Claims use since March 10, 1945.

DOHRCO—This in upper case, bold letters for metal, glass, wall and woodwork cleaners and metal and glass polishes. Filed Aug. 27, 1945 by Dohrmann Hotel Supply Co., San Francisco. Claims use since March 1, 1928.

B—This in an oversize open and shadow letter "B". Framed in the open portion of the letter "B" is the fanciful drawing of a man dressed in 18th century style clothing for shoe polish. Filed Jan. 12, 1945 by Beau Brummel Polish Corp., Brooklyn. Claims use since March, 1920.

PLATO—This in upper case, extra bold letters for dental plate cleaner in powder form. Filed June 19, 1946 by Clark Cleveland, Inc., Binghamton, N. Y. Claims use since Dec. 19, 1945.

"HON SOIT QUI MAL Y PENSE"—This in upper case, medium letters for toilet soaps. Filed Jan. 9, 1946 by Les Perfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

Go Jo—This in upper and lower case, extra bold, open shadow letters, the words being separated by a pair of hands, within a rectangular, rounded-end box, formed by a light rule, for detergents for general purpose cleaning. Filed Jan. 25, 1946 by Gojer Laboratories, Akron, O. Claims use since Dec. 1, 1945.

CRO—This in upper case, extra bold, black letters for household cleaner. Filed Jan. 29, 1946 by Colgate - Palmolive - Peet Co., Jersey City, N. J. Claims use since Jan. 25, 1946.

BIG MO—This in upper case, extra bold, black letters for household cleanser. Filed Jan. 29, 1946 by Colgate - Palmolive - Peet Co., Jersey City, N. J. Claims use since Jan. 25, 1946.

RHOTHANE—This in upper and lower case letters, the "R" and "H" being upper case, for insecticides and disinfectants. Filed Aug. 31, 1945 by Rohm & Haas Co., Philadelphia. Claims use since Aug. 23, 1945.

FLENE—This in upper case, extra bold letters for dentifrice. Filed Nov. 8, 1945 by Fluordent, Inc., New Orleans, La. Claims use since July 19, 1945.

YVELINE—This in upper and lower case, medium, script letters for shampoo. Filed Jan. 10, 1946 by Cosmetic Arts Laboratories, Upper Montclair, N. J. Claims use since May, 1944.

PETERMAN FLYOSAN—This in upper and lower case, extra bold script letters for the word "Peterman" and upper case, extra bold, black letters for the word "Flyosan" for insecticide. Filed Jan. 10, 1946 by William Peterman, Inc., Newark, N. J. Claims use since Nov. 1945 in its present form, and since 1886 as to the word "Peterman."

SANIGENE—This in upper and lower case, bold, script letters for disinfectant and mildew and bacteria preventive to be applied to the fabric and filling material of upholstery and mattresses. Filed Jan. 24, 1946 by La France Industries, Philadelphia. Claims use since Nov. 7, 1945.

Q.A.D.—This in upper case, extra bold, black letters for quaternary ammonium sanitizing powder for use as a germicide, bactericide, disinfectant and deodorant. Filed Mar. 4, 1946 by Mathieson Alkali Works, New York. Claims use since Jan. 18, 1946.

Q.A.S.—This in upper case, extra bold, black letters for quaternary ammonium sanitizing powder for use as a germicide, bactericide, disinfectant and deodorant. Filed Mar. 4, 1946 by Mathieson Alkali Works, New York. Claims use since Jan. 18, 1946.

CLAROFIN—This in upper case, medium letters for quaternary ammonium sanitizing solution for use as a germicide, bactericide, disinfectant and deodorant. Filed Mar. 4, 1946 by Mathieson Alkali Works, New York. Claims use since Jan. 18, 1946.

OSMIX—This in upper case, extra bold, black letters for preparations for deodorizing the air. Filed Mar. 20, 1946 by Airkem, Inc., New York. Claims use since Feb. 1, 1946.

ZETO—This in upper case, black, extra bold letters for insecticides. Filed Mar. 20, 1946 by United Chemical Co., Rutland, Vt. Claims use since Sept. 11, 1945.

KEEN-AIRE—This in upper case, extra bold letters for deodorizing material. Filed Mar. 25, 1946 by Keen-Aire Research Laboratories, Kansas City, Mo. Claims use since May 12, 1945.

HEARTHSTONE—This in upper and lower case, bold, Old English letters for floor, furniture and automobile waxes and polishes. Filed Sept. 13, 1945 by Plymouth Wholesale Dry Goods Corp., New York. Claims use since Feb. 13, 1945.

KENWAX—This in upper case, extra bold letters for preservative, floor wax and polish. Filed Feb. 26, 1946 by David E. Kennedy, Inc., Brooklyn. Claims use since Jan. 1, 1938.

BLACK FLAG—This in upper case, reverse letters as part of a design for

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THE importance of using deodorants or odor masks in the various insecticide sprays to enhance their salability is already familiar to you. With the introduction of DDT, the use of these odor-masking compounds has become all the more necessary because of the solvents used in this new, high-potency spray, together with the fact that most of the sprays containing DDT are still combined with the other

SPRAY manufacturers will find this pamphlet useful in selecting their insecticide perfumes and deodorants. It supplies — at a glance — all of the information needed by them to make a wise choice of odor masking agents based upon fragrance desired, limits of cost and type of toxicant or solvent employed. It also shows the percentage of deodorant suggested for each of the various insecticide types now in popular demand. Write us for a copy of this free pamphlet *today*.

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1871 — Our 75th Year of Service — 1946

hand sprayers for insecticides, etc. Filed Apr. 2, 1936 by Boyle-Midway, Inc., Jersey City, N. J. Claims use since Mar. 8, 1946 and on the words "Black Flag," and the representation of the flag since 1925.

COSMOS—This in upper case, medium letters for laundry soap. Filed Nov. 1, 1944 by John T. Stanley Co., New York. Claims use since Sept., 1918.

VITA-LASTIC—This in upper and lower case script letters for washing fluid for girdles, foundations, surgical garments and similar elastic goods. Filed Dec. 5, 1945 by Solvent Products, Inc., New York. Claims use since Sept. 27, 1945.

INDRA—This in upper case, extra black, bold letters for household washing composition. Filed Feb. 4, 1946 by Hood Chemical Co., Inc., New York. Claims use since Jan. 4, 1946.

SING—This in upper case, extra black, bold letters for household cleaner. Filed Feb. 4, 1946 by Hood Chemical Co., New York. Claims use since Jan. 4, 1946.

KEN-CLEANER — This in upper case, bold condensed letters for cleaner for miscellaneous floor surfaces. Filed Feb. 26, 1946 by David E. Kennedy, Inc., Brooklyn. Claims use since Jan. 1, 1938.

SMILEX—This in upper case, extra bold letters for stain remover, cleanser and for general household use. Filed Apr. 13, 1945 by Jefferson Manufacturing Co., Los Angeles. Claims use since Jan., 1933.

ANT DOOM—This in upper and lower case, bold letters, one word above the other for insecticide. Filed Oct. 11, 1945 by Edgar A. Murray Co., Detroit. Claims use since 1898.

AMERSE — This in upper case, open letters for germicides. Filed Oct. 15, 1945 by Vestal Chemical Laboratories, Inc., St. Louis. Claims use since Sept. 15, 1945.

BLACK FLAG—This in upper case, reverse letters as part of a design for insecticide and disinfectants. Filed Feb. 14, 1946 by Boyle-Midway, Inc., Jersey City, N. J. Claims use since Jan. 31, 1946, and on the words "Black Flag" and the representation of a flag since 1883.

SANI-RUG—This in upper and lower case, extra bold letters for powder for dry cleaning rugs and carpets. Filed Apr. 14, 1945 by Sani-Rug Co., Chicago. Claims use since Sept. 15, 1944.

MICE DOOM—This in upper and lower case, extra bold letters for poison for such animals as mice. Filed Oct. 11, 1945 by Edgar A. Murray Co., Detroit. Claims use since 1898.

RAT DOOM—This in upper case, extra bold letters for rat poison. Filed Oct. 11, 1945 by Edgar A. Murray Co., Detroit. Claims use since 1898.

SUNBLAZE—This in upper case, bold letters for shampoos. Filed Oct. 25, 1945 by Associated Products, Inc., Chicago. Claims use since Sept. 19, 1945.

GLOWAX—This in upper case, medium letters above the drawing of Chief Robert Redwing, shown with full indian headdress for automobile polish. Filed July 3, 1946 by Glowax Co., New York. Claims use since Mar. 13, 1943.

Trade Marks Granted

423,299. Dry cleaning and water repellent compound. Filed by Daizee Products Co., New York, Dec. 4, 1945. Serial No. 492,617. Published May 14, 1946. Class 4.

423,311. Polish for leather goods such as footwear and luggage. Filed by K. J. Quinn & Co., Boston, Dec. 8, 1945. Serial No. 492,953. Published May 21, 1946. Class 4.

423,313. Treated polishing cloths. Filed by Callaway Mills, La Grange, Ga., Dec. 11, 1945. Serial No. 493,039. Published June 4, 1946. Class 4.

423,317. Deodorants. Filed by Marcel Leduc, Rochester, N. Y., Dec. 12, 1945. Serial No. 493,133. Published May 21, 1946. Class 6.

423,320. Toilet soap. Filed by Colgate - Palmolive - Peet Co., Jersey City, N. J., Dec. 14, 1945. Serial No. 493,251. Published June 4, 1946. Class 4.

423,323. Furniture polish. Filed by Waltsade Mfg. Co., New York, Dec. 15, 1945. Serial No. 493,411. Published May 28, 1946. Class 16.

423,324. Shampoo. Filed by Consolidated Cosmetics, Chicago, Dec. 17, 1945. Serial No. 493,429. Published May 28, 1946. Class 6.

423,328. Soap. Filed by Launderette Soap Corp., New York, Dec. 18, 1945. Serial No. 493,499. Published June 4, 1946. Class 4.

423,329. Powdered detergent. Filed by O.D. Chemical Corp., New York, Dec. 18, 1945. Serial No. 493,506. Published June 4, 1946. Class 4.

423,330. Household washing and cleaning detergent. Filed by Rumford Chemical Works, Rumford, R. I., Dec. 18, 1945. Serial No. 493,517. Published May 28, 1946. Class 4.

423,335. Detergent compound for removing greasy, fatty and saponaceous residue. Filed by Glee Products Co., Chicago, Dec. 21, 1945. Serial No. 493,678. Published June 4, 1946. Class 4.

423,357. Shampoos. Filed by Associated Products, Inc., Chicago, Jan. 26, 1946. Serial No. 495,438. Published May 28, 1946. Class 6.

423,369. Pre-wax cleanser for automobile bodies, etc. Filed by Sun Oil Co., Philadelphia, Feb. 9, 1946. Serial No. 496,345. Published May 28, 1946. Class 4.

423,523. Soap and soap preparations. Filed by Beach Brothers, Dubuque, Ia., Nov. 10, 1945. Serial No. 491,383. Published June 4, 1946. Class 4.

423,685. Shampoo, bubble bath, insect powder. Filed by Kinghill Laboratories, New York, Nov. 22, 1944. Serial No. 476,770. Published Mar. 6, 1946. Class 6.

423,658. Fungicide for addition to a varnish, paint or lacquer. Filed by Mer-Q-Ree, Inc., Bethesda, Md., Jan. 16, 1945. Serial No. 478,686. Published June 5, 1945. Class 6.

423,689. Insecticides. Filed by A. Bromm & Co., Evansville, Ind., Jan. 22, 1945. Serial No. 478,850. Published Apr. 3, 1945. Class 6.

423,696. Bubble bath compounds. Filed by Guy J. Banta, Los Angeles, Mar. 19, 1945. Serial No. 481,041. Published June 11, 1946. Class 6.

423,731. Chemical composition for removing rust scale and tarnish from metals. Filed by Waverly Products Co., Philadelphia, Aug. 31, 1945.

(Turn to Page 135)

How can you measure their standard of living?

• There are lots of ways. But the most accurate means of gauging the living standard of people might be to find out how great a part CHLORINE plays in their daily lives.

• Medicines, vitamins and sulfa drugs . . . pure water, selective solvents and safe refrigerants . . . white paper and delicate dyes . . . synthetic rubbers and plastics . . . high-grade gasoline, water-proofing and fire-proofing materials—these and many other refinements of our civilization depend on Chlorine and its derivatives.

• Many users know WYANDOTTE CHLORINE and Wyandotte Service. As our standard of living rises—and the demand for Chlorine increases—Wyandotte Chemicals Corporation will supply American industry with more and more of this valuable chemical.

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Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine
Hydrogen • Sodium Zincates • Aromatic Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

BIDS AND AWARDS

N. Y. Navy Polish Bids

In a recent opening for miscellaneous supplies by the New York Navy Purchasing Office, New York, the following bids were received on 21,000 pounds of polish (powdered, pumice stone, fine, commercial grade) in five pound cans: Charles B. Chrystal Co., New York, 9¾ cents a pound; Industrial Distributors, New York, 10.2 cents per pound; Interborough Chemical Co., New York, 10.49 cents a pound; American Graded Sand Co., Chicago, 12 cents per pound and Octagon Process Co., Brooklyn, 12 cents per pound.

Scouring Powder Bids

The two bidders on an unspecified quantity of scouring powder in a recent opening for miscellaneous supplies by the Panama Canal purchasing office, Washington, D. C., were: Imperial Products Co., Philadelphia, $158, and Wm. Messer Corp., New York, $158.26, accepted.

Treasury Type Cleaner Bids

In a recent opening for miscellaneous supplies by the U. S. Treasury Department, Procurement Division, Washington, D. C., the following bids were received on 12,000 bottles of type cleaner: Walter G Gies Co., Crownsville, Md., 13 cents a bottle; Potomac Products Co., Washington, D. C., 14.5 cents, and Dicol Chemical Co., Mount Vernon, N. Y., 12⅛ cents.

In another Treasury Department opening for 220 gallons of liquid insecticide for the Social Security Administration in Baltimore, the following bids were entered: R M. Hollingshead Corp., Camden, N. J., $1.49 a gallon; Crystal Soap & Chemical Co., Philadelphia, $2.30; Solarine Co., Baltimore, $1.25; C. B. Dolge, Westport, Conn., $2.60; Lanair Chemical Corp., Chicago, $1.53; Brilco Laboratories, Brooklyn, $1.10; Capital Chemical Co., Washington, D. C., $1.40; Sespin Chemicals, Chicago, 78 cents; Elkay Products Co., New York, $1.45; Uncle Sam Chemical Co., New York, $1.33; Sinclair Refining Co., New York, $1.50; McCormick & Co., Baltimore, $2.55 and Industrial Distributors, Inc., New York, $1.85.

Sweeping Compound Bids

The following bids were received on 24 barrels of sweeping compound in a recent opening for miscellaneous supplies by the U. S. Department of Agriculture, Division of Purchase, Sales & Traffic, Washington, D. C.: M. J. Gensberg Co., Washington, D. C., $8.50 per barrel; Lasting Products Co., Baltimore, $14.80 per 300 pound container; Paxon Mfg. Co., Philadelphia, $7.30 a barrel, and Sweeping Compound Manufacturing Co., New York, three cents per pound.

Misc. Treasury Dept. Bids

The following bids were received in a recent opening for miscellaneous supplies by the Treasury Department, Washington, D. C., on: item 51P-1160, 1,500 containers of shoe polish; item 51P-1130, 228 containers of metal polish and item 51-P-1105, 50 gallons of furniture polish—Oil Specialties & Refining Co., Brooklyn, item 51P-1130 (metal polish), 48.6 cents a container; item 51P-1105 (furniture polish), 47.7 cents per gallon; Trio Chemical Works, Brooklyn, item 51P-1150, 65 cents; item 51P-1105, 60 cents; Solarine Co., Baltimore, item 51P-1130, 48.5 cents; item 51P-1105, 47 cents; Whittemore Bros. Corp., Cambridge, Mass., item 51P-1160 (shoe polish), 8.334 cents per container; International Metal Polish Co., Indianapolis, Ind., item 51P-1130, 80 cents; item 51P-1105, 90 cents; and Welmaid Manufacturing Corp., Chicago, item 51P-1160, 4.85 cents; item 51P-1130, $1.20 and item 51P-1105, 90 cents.

In the same opening bids were asked on: item 51P-2565, 12,000 pounds of scouring compound; item 51S-1750, 20,000 pounds of soap powder; item 51S-2050, 150,000 pounds of soda ash; item 51S-1995-5, 10,000 pounds of caustic soda, and item 51S-1885, 75,000 pounds of toilet soap. Bidding were: Hunnewell Soap Co., Cincinnati, item 51P-2565, three cents a pound and item 51S-1750, six cents; American Soap & Washoline Co., Cohoes, N. Y., item 51P-2565, 2.24 cents per pound and National Milling & Chemical Co., Philadelphia, item 51P-2565, four cents a pound.

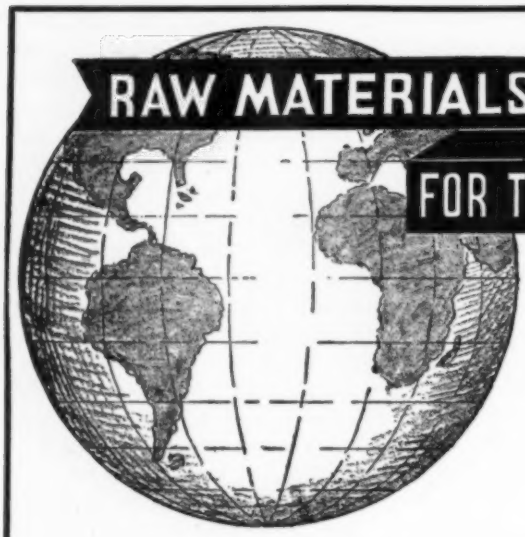
Also in the same opening, the following bids were received on 144 pounds of metal polish; Oil Specialties & Refining Co., Brooklyn, 16.5 cents per pound; Bond Sanitary Products Co., York, Pa., 30 cents per can; R. M. Hollingshead Corp., Camden, N. J., 13.7 cents per pound; Solarine Co., Baltimore, 12.5 cents; International Metal Polish Co., Indianapolis, 14 cents and Imperial Products Co., Philadelphia, 14 cents.

Naphthalene Treasury Bids

The following bids were received in a recent opening for miscellaneous supplies by the U. S. Treasury Department, Procurement Division, Washington, D. C., on 2,500 pounds of naphthalene: N. Brittingham & Sons, Philadelphia, fibre drums of 220 pounds, 12.5 cents a pound, or in bulk in 50 pound cartons, 12.5 cents a pound; B. R. Elk & Co., Garfield, N. J., 11.8 cents a pound; Alex C. Ferguson Co., Philadelphia, 10.3 cents per pound; Industrial Distributors, Inc., New York, 1,000 pounds only, 12.8 cents a pound; Naphthalene Products Co., Tarrant, Ala., 13.09 cents a pound, and Reilly Tar & Chemical Corp., Newark, N. J., 10.2 cents per pound, supplied in 200 pound bulk barrels.

PWA Liquid Soap Bids

Liquid soap bids were received from the following firms in a recent opening for miscellaneous supplies by the Federal Works Agency, Public Buildings Administration, Office of Buildings Management, Washington, D. C.: Lanair Chemical Corp., Chicago, item 1a, $2,090; R. M. Hollingshead Corp., Camden, N. J., item 1a, $2,420; item 1c, $2,310; Crystal Soap & Chemical Co., Philadelphia, item 1a, $2,458.50, item 1b, $2,859.50; Brilco Laboratories, Brooklyn, item 1a, $3,575, item 1b, $3,465, and Trio Chemical Works, Brooklyn, item 1b, $2,310.



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FOR THE SOAP INDUSTRY

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RED OIL **STEARIC ACID**
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LANOLIN **WOOL FAT** **DEGRAS**

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Unique surface active agents; prolific foam; high detergency and emulsifying powers; suitable for cosmetic and industrial use.

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RAW MATERIAL MARKETS

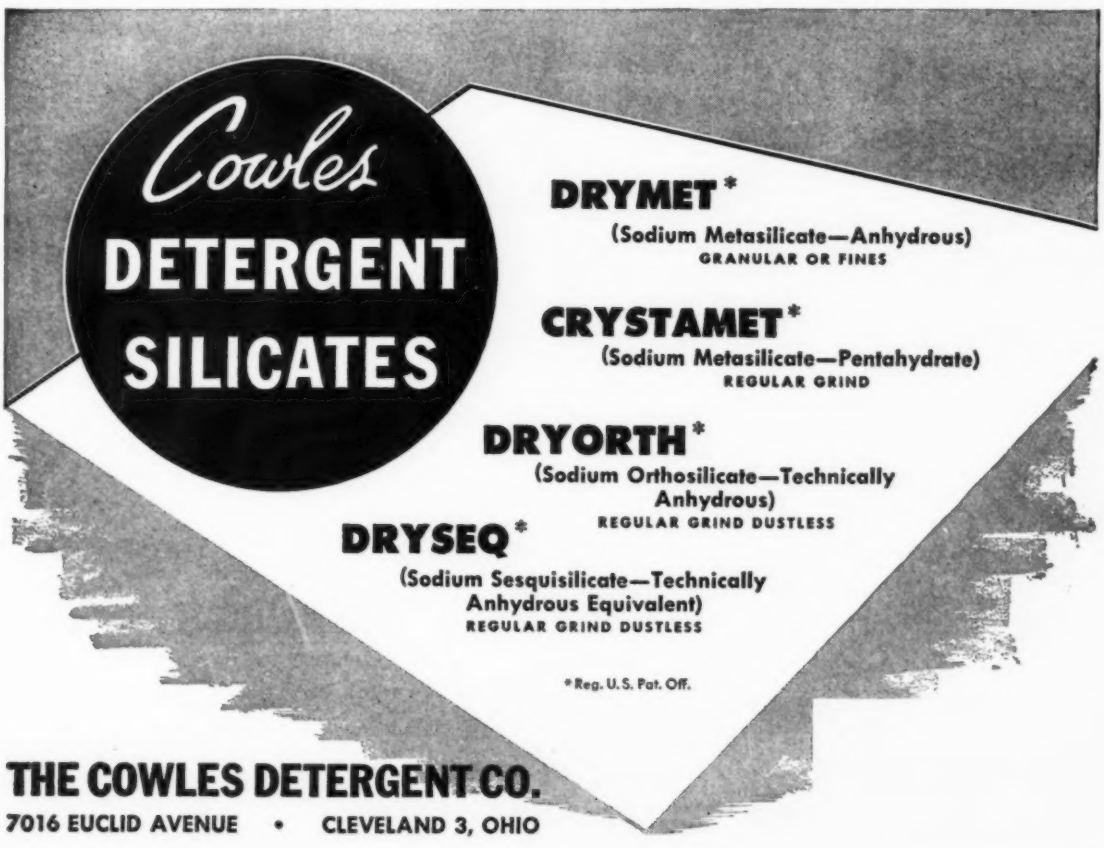
FINAL removal of all ceiling prices on both edible and inedible fats and oils was effected by the Office of Price Administration, Oct. 29, with the issuance of Amendment 72 to SO 132. This action follows an earlier move releasing seven of the then remaining controlled edible oils and several important inedible oils, Oct. 23. Among the important soap oils and fats decontrolled on Oct. 29, were: coconut oil, palm oil, palm kernel oil, inedible tallow, inedible grease, babassu oil, olive oil foots, dehydrated castor oil, neats foot oil and fish oils. Earlier in the month, meat prices were decontrolled following a nationwide radio address on the meat situation by President Truman.

The immediate reaction to removal of price ceilings on fats and oils was a general upward revision of prices. Tallow, for example, which had a ceiling price of 8⅝ cents a pound is reported being bought by soap makers at a price of 17¾ cents a pound; coconut oil prices have more than doubled, going from 8 cents a pound to a range of 18 to 20 cents a pound, with talk of an eventual price range of around 22 or 23 cents, to put coconut in the same price class as soybean and cottonseed oils. It is expected that yellow grease will be selling around 17½ cents a pound, based on tallow prices. The former grease ceiling price was just above 8c. As a result of its price decontrol, copra is now expected to rise sharply. Prices on a West Coast tonnage basis range from $175 to $200, c.i.f. West Coast ports. The copra ceiling was $110.25 per ton, c.i.f., West Coast.

Free market prices on palm oils have not been established as yet, although it is expected these prices will follow the trend on other oils, with an increased supply seen resulting.

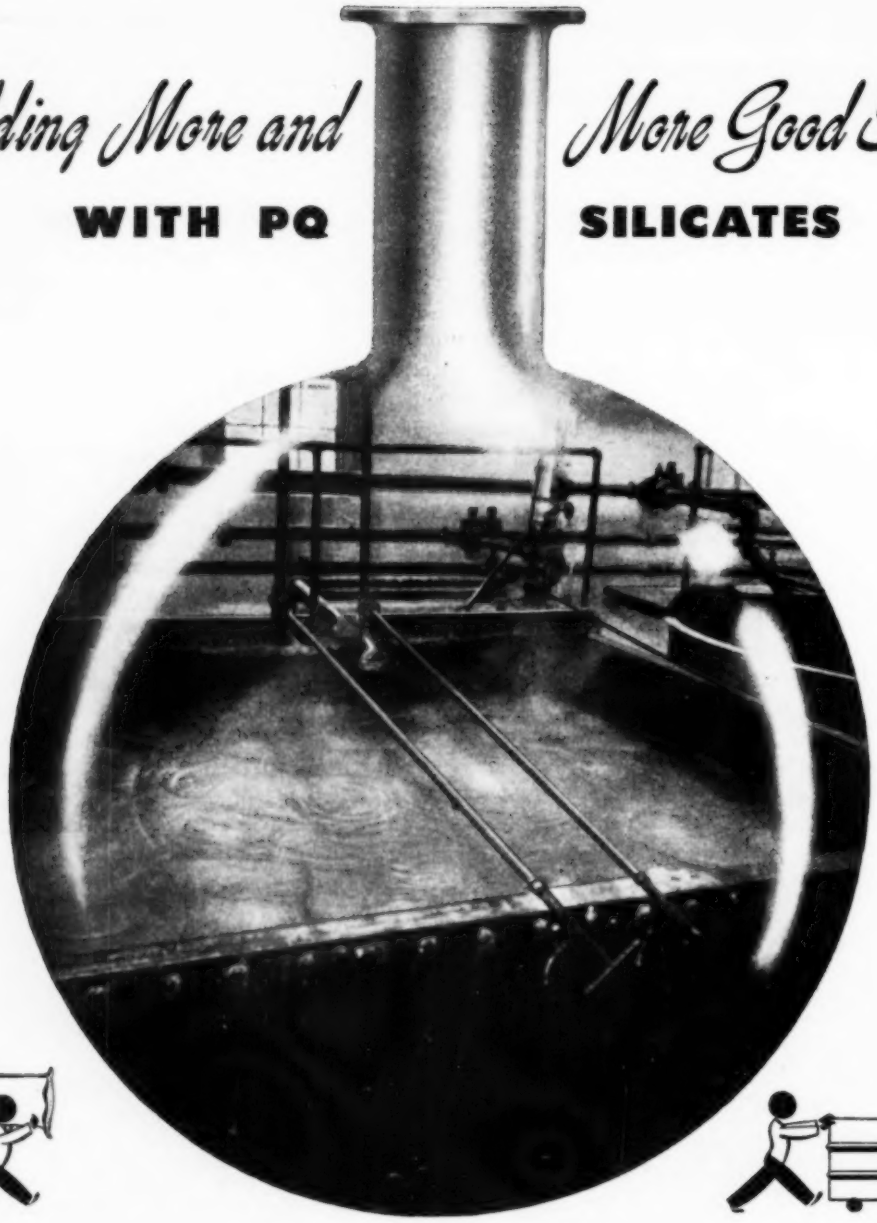
Soap makers were reported not to be happy about decontrol of fat and oil prices, since ceilings still remain on soaps. However, a move to adjust soap pricing is expected momentarily with a corresponding increase in production and supplies of soap.

The tallow and fat position has improved with the removal of price ceilings on meat and the sharply increased slaughtering rate. Little, if any, fat or tallow was bought at prices that went into effect on these im-



Building More and More Good Soap..

WITH PQ SILICATES



Fat and oil scarcities mean extending supplies, yet the product specifications call for better cleaning efficiency. There's been a way to obtain both since 1860, when PQ Silicates began to be used in soaps.

Have you checked lately the percentage of silicate which you use? Perhaps a modification would result in an improved soap or detergent. For some brands it may be better to use a different grade of PQ Silicate, or even a potassium silicate for greater volume and stability of suds.

Be informed as to the variety of the PQ Brands—over 50 of them. Let us mail you Bulletin #17-1, which describes the most important of these.

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PQ SILICATES OF SODA

portant soap making raw materials following their ceiling price decontrol. Another factor hurting soap production in the past few weeks has been the tie-up of shipping as a result of the maritime strike. Imports of coconut oil, palm and palm kernel oils and other oils essential to the manufacture of soap have been held up as a result of labor difficulties.

Meanwhile, efforts are being made to stimulate interest in collection of waste fats by housewives. During the war a monthly average of 18,000,000 pounds of waste fat was collected. Recently, this figure has dwindled to 5,000,000 pounds. With meat plentiful again, it is expected that waste fat collection should increase rather sharply. The price the housewife may receive on waste fats she turns in is expected to go up along with prices of other fats and oils used for making soap.

Another important soap raw material: soda ash came into the news during the past month when an agreement with the Soda Ash Industry Advisory Committee and the Civilian Production Administration was announced whereby voluntary distribution of soda ash, which worked so successfully during the war, has been reinstituted. Present production of soda ash is 15 per cent below requirements of essential users, according to the CPA, which saw no immediate probability of an increase in production next year that would overtake demand. All outstanding ratings issued to consumers under P.R. 28 by the Civilian Production Administration to obtain soda ash, therefore, expired at the end of October.

From Peru comes word that a division of that country's Ministry of Agriculture has been authorized to acquire the pyrethrum crop up to a value of 10,000 soles, at a base price of 2.50 soles per kilogram. The Commission will purchase the pyrethrum with its own funds, reimbursing itself when the product is marketed, and farmers will be granted the difference between the price received and the fixed price. Cultivation of pyrethrum in the sierra region has been given special attention as a means of diversifying agricultural production.

Declared exports of petitgrain oil from Paraguay to the U. S. declined in volume during the first eight months of 1946, as compared with a comparable period in 1945, but rose in value. Exports amounted to 63,780 kilograms, valued at $392,733, throughout the first eight months of 1946, as compared with 22,044 kilos., worth $267,114, in the like months of 1945. British producers of lavendar oil do not anticipate any surplus for export during the present season, according to *Foreign Commerce Weekly*. A good crop is expected. Algeria's 1946 geranium oil crop, although somewhat reduced in acreage this year, has had the benefit of better weather conditions and two cuttings already have been made with a third being possible. About 25,000 acres in the Ukraine, Soviet Russia, are reported planted to roses and lavender for the production of essential oils, as part of the five year plan.

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SYNTHETIC DETERGENT

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(Low Alkalinity—High Percentage Active Ingredient)

Specific Gravity—.1 (Approximately 10 times as bulky as soda ash.)

FOR FOAM-BULK-DETERGENCY

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Complete Line of High Quality Synthetic Detergents—Paste—Powder and Liquid for Compounding.

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The clam can seal itself off from the outside world quite completely when it really has its heart in it. But we shudder at the thought of its facing the tests we impose on the seams of each National can.

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This is just one of many ways in which our laboratories are doing something tangible to protect your product.

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Exhibit Soaps, Sanitary Products At Chicago Safety Exposition

SOME twenty manufacturers of soaps, sanitary maintenance materials and equipment participated in the 5-day Safety Exposition, held in Chicago last month in connection with the National Safety Congress. Exhibitors of floor sweeping and oil absorbing compounds had abundant statistical support for their products in the Safety Council's figures evidencing that falls on slippery factory floors are a preponderant cause of serious accidents involving industrial workers. Among manufacturers displaying products for preventing such falls were the Diversey Corp. and the Oil-Dri Corporation of America, both of Chicago, and Waverly Petroleum Products Co., Philadelphia.

Non-skid floor polishes, floor seals, mats, abrasives and other similar materials for reducing floor hazards were shown by the Finnell System, Inc., Elkhart, Ind., G. H. Tennant Co., Minneapolis, Walter G. Legge Co., New York, Huntington Labs., Huntington, Ind., and American Mat Corp., Toledo, O.

Soaps and protective creams for personal sanitation, cleaning compounds for everything from the factory skylight to wash basins and toilet bowls, germicides, insecticides, disinfectants, deodorizers and similar sanitary specialties were well represented in the displays of Lien Chemical Co., Chicago, G. H. Packwood Mfg. Co., St. Louis, Lightfoot, Schultz Co., New York, Milburn Co., Detroit, Mine Safety Appliance Co., Pittsburgh, Stepan Chemical Co., Chicago, Sugar Beet Products Co., Saginaw, Mich., and West Disinfecting Co., New York.

Products for prevention of athlete's foot were shown by Peda Spray Co., New York, C. D. Dolge Co., Westport, Conn., and Onox, Inc., San Francisco, Calif.

Soap dispensers for industrial use were shown by various exhibitors and Bradley Washfountain Co., Milwaukee, Wis., displayed their group wash fountain and multi-stall showers. Lien Chemical Co., Chicago, also showed a model of a new ultra violet germicide lamp they are distributing.

As the background for their presentation, West Disinfecting Co. had a colorful, brightly lit display specially designed and built for the safety convention. Wm. Flatow, advertising manager, and Wm. Dooley, executive from the New York office, were on hand for the "unveiling" of this exhibit and to assist local representatives, including Glen Buerki, Chicago district manager and Chas. Gravalt of the railroad and aviation department.

Among newcomers at the Safety Exposition was the National Association of Insecticide and Disinfectant Manufacturers, whose booth, presenting the importance of sanitary products for protecting health, sanitation and safety, attracted continuous attention and served to build good will for the industry among consumers in the factory, institution and home field.

In the convention deliberations of the Safety Congress' chemical section D. D. Irish of Dow Chemical Co., Midland, Mich., talked on the importance of properly labeling all dangerous chemicals used both in the home and industry. From long use, he said, the word "Poison" on a label is associated only with liquids taken orally. Many chemicals used commonly in manufacturing operations and around the home, he explained, are dangerously inflammable, may cause skin irritations or give off harmful vapors and should bear a warning label. Much recent progress has been made but to further protect users, he proposed the adoption of a uniform practice. Plant safety directors, in the meanwhile, he suggested, should bear down on educating employees to be prepared for anything when they work with chemical products.

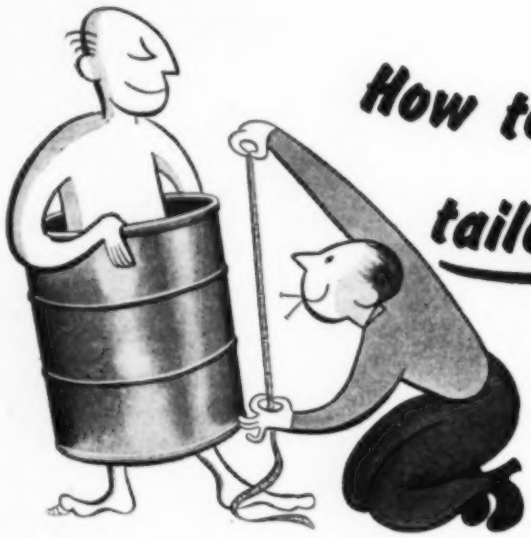
Sugar Beet Sales Meeting

Sugar Beet Products Co., Saginaw, Mich., called its midwestern field representatives to Chicago early last month for a sales conference at which market conditions were discussed and plans developed for expanding sales activities. The meeting was held during the National Safety Congress so that the men might also participate in the safety exposition where the company had a display. R. S. Montague, Jr., vice president, had charge of the affair.

Chi. Drug Xmas Party

December 19th, 1946, has been fixed as the date for the annual Christmas Party of the Chicago Drug and Chemical Association, to be held at the Drake Hotel. A. J. Rocca, chairman of the prize committee, announced that suitable gift items will be given to the attending members, and special door prizes will be offered.

West Disinfecting Co. Exhibit at Chicago Safety Exposition



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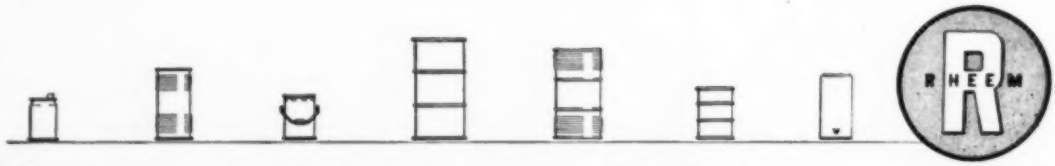

NEW YORK CHICAGO BALTIMORE NEW ORLEANS HOUSTON LOS ANGELES SAN FRANCISCO

Revoke USDA Oil Orders

The Department of Agriculture announced on October 22nd the revocation of all War Food Orders controlling fats and oils with the exception of WFO-130 (Purchase, Sale, and Use of Peanuts of the 1945 crop) and WFO-63 (control of imports). The Department also will continue to allocate exports.

This action was taken after consultation with the Edible Oil Industry Advisory Committee and other industry representatives. While price ceilings had not at that time been lifted on inedible oils, the interrelationship of all fats and oils and the possibility of substitutions made it impracticable, according to the USDA, to continue enforcement of War Food Orders governing inedible oils, following the relaxation of price controls on edible oils.

The following orders were revoked by the USDA, effective October 19, 1946:

WFO-29—Distribution, Delivery and Use of Cottonseed, Peanut, Soybean and Corn Oils.

WFO-42—Restrictions on Use of Fats and Oils in Edible Fat or Oil Products.

WFO-42a—Use of Fats and Oils in Protective Coatings, Coated Fabrics, and Floor Coverings.

WFO-42b—Use of Fats and Oils in Soap.

WFO-43 — Restrictions on Use, Processing, Sale and Delivery of Coconut, Babassu, Palm Kernel and other High Lauric Acid Oils.

WFO-67 — Inedible Tallow or Grease.

WFO-124 — Linseed Oil Inventories.

The Department also announced that effective immediately the Fats and Oils Branch will no longer allocate high lauric acid oils, and persons holding import licenses are relieved of the condition requiring them to sell in accordance with the allocations made by the Department of Agriculture.

Soda Ash on War Basis

By agreement with the Soda Ash Industry Advisory Committee, the voluntary plan of distribution of soda ash which was successful during the war years has been reinstituted, the CPA announced in mid-October. According to CPA, reversion to the war-time basis will allow industry to make every effort to distribute the supply fairly and the needs of all soda ash consuming industries will be taken care of on an equitable basis. The Committee estimated that the present production is 15 per cent below the requirements of essential users and saw no immediate probability of an increase in production next year sufficient to meet demand. The new plan is expected to increase present rate of deliveries to aluminum producers by 45,000 tons a year. CPA said it was considering the issuance of a direction to PR-28 limiting temporarily the priority assistance in obtaining soda ash to emergency cases or for use in stepping up production of materials designated by CPA as critical. A government spokesman told the caustic soda segment of the Chlorine-Alkali Manufacturers Industry Advisory Committee that CPA is receiving reports about some suppliers refusing to accept 1947 orders from established customers. Several caustic soda producers said they were withdrawing from areas uneconomical for them to serve.

Lever Advances Two

Two advances were recently announced by Lever Brothers Co., Cambridge, Mass. Leslie A. Sauers, western regional sales manager of Pepsodent, was appointed to the newly created post of division field sales manager, located in Chicago, and Sam Laurie, manager of the Philadelphia division, was named manager of the combined Pepsodent New York and Philadelphia divisions with offices in New York.

Cosmetic Chemists Meeting

The Society of Cosmetic Chemists has announced the program for its annual meeting to be held at the Savoy Plaza Hotel, New York, on December 6th, 1946. At that time, the first honorary membership of the society will be presented to Dr. Dan Dahle, director of research for Bristol-Myers Co., Hillside, N. J.

Higher Copra Price Likely

A higher price for Philippine copra may be expected now that the trade agreement between the Commodity Credit Corporation and the Philippine Government, under which the latter has contracted to sell her exportable surplus of copra to us, has been opened for further discussion. The Philippine Government has put CCC on notice that it is not satisfied with the price at which we contracted for her exportable surplus of copra and a USDA representative will leave shortly for Manila to work out a price adjustment. CCC holds a similar contract for copra produced in the Dutch East Indies, but no re-opening of this contract is foreseen for the near future.

Convict Illegal Fat User

Zoll M. Zilberbrand, head of the Family Soap Co., 1338 Fullerton Ave., Chicago, was fined $1,000 and sentenced to 60 days in jail, by Federal District Judge Philip L. Sullivan in Chicago, Oct. 25, on a plea of guilty to charges of using fats and oils in violation of OPA regulations. Evidence submitted by the federal prosecutor, Raymond McClory, established that, between January, 1943 and September, 1945, Family Soap Co. had illegally used 8,000,000 lbs. of fats and oils for soap making and had made a profit of at least $150,000 on the business.

When an investigation was begun Zilberbrand doubled his illegal use of the restricted materials, McClory charged. The company, he said, had never obtained a quota nor filed required reports with the government control agency. Zilberbrand's attorney, in offering mitigating circumstances, pleaded that the manufacturer had "supplied housewives with soap," and had not made expensive cosmetics.

Ralph McKinney Dies

Ralph B. McKinney, general manager of the paper makers chemical department and member of the board of directors of Hercules Powder Company, died September 21st in Wilmington, after a two weeks illness. Mr. McKinney had been associated with Hercules since its organization in 1913.

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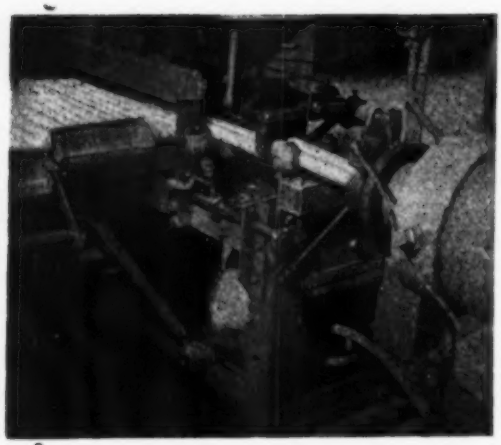

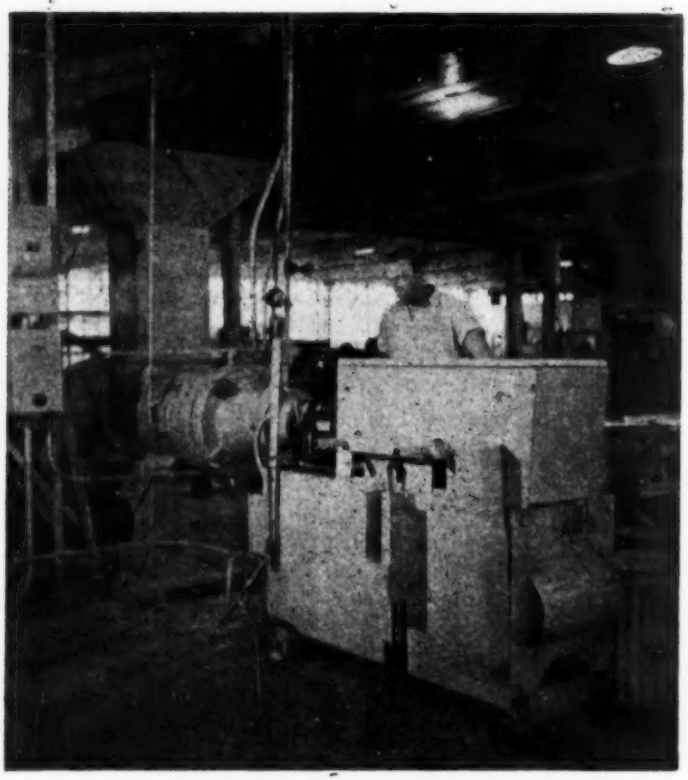

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New Polyphosphates

THE number of sodium phosphates available has been increased in recent years because of the commercial production of several polyphosphates, produced by dehydration of sodium orthophosphate at elevated temperatures. Their composition may be deduced from their constituent Na_2O to P_2O_5 ratios. Five polyphosphates are listed below along with their empirical formulae calculated from the ratios $Na_2O:P_2O_5$. Experimental data on their properties are given in table 1.

It is important to note that whereas sodium tetraphosphate and sodium tripolyphosphate may be considered compounds of definite composition, the remaining three members of this class are glasses of indefinite composition. That is, their ratios of Na_2O to P_2O_5 may vary with the degree of hydration. For example, so-called sodium tetraphosphate represents a ratio of 1.5 Na_2O to 1.0 P_2O_5. Actually this ratio may be 1.35 to 1.0 in the commercial product. Hence the properties of the substance represented by the latter ratio will be different from those of the higher ratio. For instance, the pH value of a 1 per cent solution of the completely dehydrated compound is 9.15, while that of lower ratio may fall to values below 8. It should be observed however, that production methods tend to give fairly uniform water content in glasses. The experimental results presented here apply to commercial products.

In use the stability of the phosphates at different temperatures is important, as all tend to revert to the orthophosphate at elevated temperatures of their solutions. Titrations with calcium chloride solution were made to show the effect of temperature. The figures in table 2 reflect the amount of undecomposed polyphosphates remaining at the time interval given.

TABLE 1

Name	*Formula*	*Solubility in parts per 100 parts water*	*pH of 1 % solutions*	*Total amount of Phosphate to soften 100 p.p.m. of calcium carbonate*
Tetrasodium pyrophosphate	$Na_4P_2O_7$	7.5 at 20°C.	10.0-10.2	133 p.p.m.
Sodium tripolyphosphate	$Na_5P_3O_{10}$	15.0 at 18°C.	9.7- 9.8	148 p.p.m.
Sodium tetraphosphate	$Na_6P_4O_{13}$	150 or more	7.4	154 p.p.m.
Sodium hexametaphosphate	$Na_6P_6O_{18}$	150 or more	6.5	204 p.p.m.
Sodium septaphosphate	$Na_9P_7O_{22}$	150 or more	7.1	174 p.p.m.

The results show that tripolyphosphate is the most stable of the four polyphosphates, and that the rate of conversion to orthophosphate or hydration, increases as the size of the anion increases. The effect of temperature is very marked; at 60°C. all of the polyphosphates are stable for longer periods than at 100°C. The tripolyphosphate changes very little at the lower temperature. The septaphosphate changes less in 71 hours at 60°C. than it does in 1 hour at 100°C.

Reaction-rate constants at different temperatures are given for the

TABLE 2

	Amounts of undecomposed polyphosphates remaining in time shown, at 100°C.							
Name	5 *min.*	10 *min.*	20 *min.*	30 *min.*	40 *min.*	50 *min.*	60 *min.*	100 *min.*
Sodium tripolyphosphate	8.2		8.4				6.2	6.1
Sodium tetraphosphate		9.3	7.4	6.1	4.5	3.6	3.0	
Sodium hexametaphosphate	17.3	15.0	11.0	8.6	6.0	4.0	3.5	
Sodium septaphosphate		21.0	15.7	11.5	8.8	6.4	4.6	

	Amounts of undecomposed polyphosphates remaining in time shown, at 60°C.			
Name	5 *hrs.*	23.5 *hrs.*	53 *hrs.*	71 *hrs.*
Sodium tripolyphosphate	7.9	7.9	7.6	7.6
Sodium tetraphosphate	10.6	8.9	6.8	5.7
Sodium hexametaphosphate	17.2	11.9	5.9	4.0
Sodium septaphosphate	22.5	18.0	10.9	8.1

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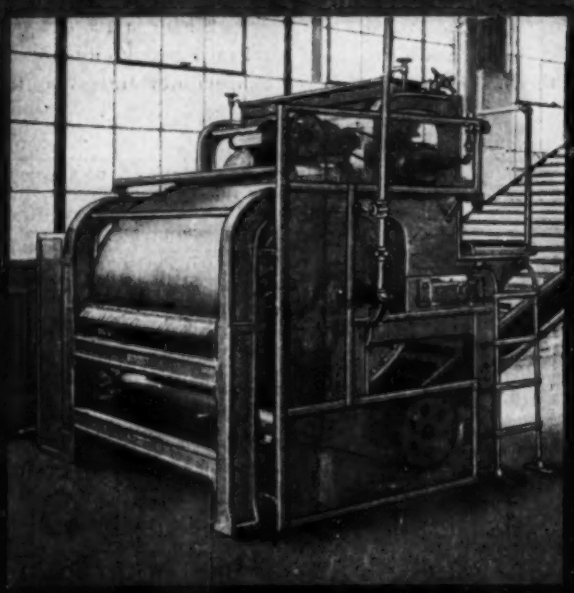

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three higher polyphosphates, as well as graphs which show that the log of the reaction-rate constant is inversely proportional to the absolute temperature at which the constant was evaluated. G. Corsaro. *Am. Perfumer 48*, No. 8, 64-75 (1946).

Soap Gels

The time of gel setting was used to determine the effect of variations in soap concentration, temperature and solvent in binary systems constituted from sodium oleate or sodium stearate in toluene, xylene, pienene, or Nujol. The setting time of gels of either soap in any of the media used decreased as the soap concentration increased and the temperature decreased. Time-concentration curves at 50°C. of sodium oleate indicated the setting effect of the solvents to decrease in the order toluene, Nujol, xylene, pinene.

The gelation mechanism was considered as being that of a true solution obtained during preparation at the boiling point, forming a colloidal solution on cooling, consisting of a suspension of micelles in a soap solution; and finally passing to the true gel state. The retarding effect of various substances on the syneresis of the sodium oleate-pinene gel was in the decreasing order sodium palmitate, potassium stearate, sodium stearate for soaps, and Nujol, benzene, toluene for solvents. G. S. Hattiangdi. *J. Sci. & Ind. Research 4*, 489-92 (1946).

Rosin Soap for GR-S

Standard GR-S utilizes fatty-acid soap as an emulsifier, which is in turn converted to free fatty acid when flocculated. During the early phases of the government synthetic-rubber program, it was shown that rosin-acid soap could be substituted for fatty-acid soap in the GR-S system, with formation of polymer of good quality. Better quality of tires and certain other advantages resulted from use of the rosin soap. The soap is now available under the designation GR-S 10. A non-discoloring, nonstaining variation is also available under the code GR-S X-273. G. R. Cuthbertson, W. S. Coe and J. L. Brady, *Ind. Eng. Chem. 38*, 975-6 (1946).

Tests with Lauryl Sulfate

Patch tests to determine skin irritation of sodium lauryl sulfate were performed on 11 persons, 5 men and 6 women. An aqueous solution of sodium lauryl sulfate was used in a 0.1 per cent, a 1 per cent, and a 3 per cent concentration. Also an emulsion composed of 1 per cent of cetyl alcohol, 2 per cent of mineral oil U.S.P. and 1 per cent of sodium lauryl sulfate. Of the 5 men, only one showed a very positive burning with the emulsion. Of the women, two showed positive reactions, one to the emulsion, and the other to an extra patch of a cleansing cream containing 3 per cent of sodium lauryl sulfate.

The results suggest that this compound is irritating on the skin of some people and should be used only in very low concentrations in a product to remain on the skin. In shampoos it is always rinsed off and therefore should produce no irritating action. J. Macias-Sarria. *Am. Perfumer 48*, No. 9, 614 (1946).

Comparison of Methods

Two methods of soap making, one by preliminary removal of glycerine and the other by direct saponification, were compared. The quality of glycerine obtained by direct saponification is superior to that obtained by extraction. In a typical case, the glycerine recoveries were 82 and 90 per cent, soap yields 92 and 94 per cent, and carbon requirements 59 and 50 parts per 100 parts of oil, for the deglycerination and direct treatments, respectively. J. Bergeron. *Inds. corps gras 2*, No. 1, 19-20 (1946.

Autoxidation of Soaps

Study of a number of inorganic and organic inhibitors of autoxidation in soap showed the following approximate decreasing order of effectiveness: *alpha*-naphthylamine, hydroquinone, diphenylamine, *beta*-naphthol, thymol, carvacrol, flowers of sulfur, sodium thiosulfate, salicylic acid, and water glass ($Na_2O:2SiO_2$). *alpha*-naphthylamine, showing the strongest inhibitive action, dyed the soap a dark violet-brown almost instantly. Hydroquinone colored the soap a gray-brown. With diphenylamine the soap turned a light gray-beige. *beta*-naphthol dyed the soap in the same manner as diphenylamine, while thymol and carvacrol had only a slight effect on its color.

Metallic salts accelerate autoxidation of soaps, cobalt being the most active, then copper, iron, chromium, and manganese in decreasing order. E. J. Better and A. Davidsohn. *Oil & Soap 23*, 283-4 (1946).

New Shampoo Stabilizer

The defatting power and turbidity point of shampoo compositions containing salts of long-chain monoalkyl esters of sulfuric acid can be decreased notably by adding certain stabilizing agents. The detergent salt should contain at least 12 carbon atoms while the stabilizing agent should be an anion-active salt of monoalkyl sulfate containing 5-11 carbon atoms, but not more than 9 carbon atoms in a straight chain. The stabilizing agent should be present to about 50 per cent of the quantity of detergent, while the shampoo solution may contain 3.5-50 per cent of such a mixture by weight. Lathering power is not impaired by the stabilizer. L. H. Flett and G. C. Toone, to Allied Chemical & Dye Corp. U. S. Patent No. 2,401,726.

Grease Remover

Five gallons of kerosene and 0.25 pound of anhydrous caustic soda are mixed and heated to 100°C. for 2 hours. The reaction product is neutral to litmus and has a flash point of 115-120°C. It will remove grease and heavy-oil films from metal objects without irritating the skin of the user. The detergent may be mixed with an equal weight of both tincture of green soap and corn meal to give a hand soap, after addition of a deodorant. M. J. Myres. U. S. Patent No. 2,402,-657.

Phenols in Soaps

Phenol or cresol in soap is best determined by separation from the soap by steam distillation, followed by determination of the phenol by the bromine-absorption method. A method is also given for determining high-boiling tar acids in soap. Sub-committee on Methods of Soap Analysis. *Analyst 71*, 301-5 (1946).

Norda

Synthetic floral oils . . .

PRESENT reduced supplies of natural floral essences emphasize the value of high quality substitutes. Synthetic floral essences can be used to replace the natural oils with full satisfaction and marked success in numerous products,—toilet soaps, shampoos, shaving creams, powders, creams, and many others.

In fact, in many products the newer synthetic floral essences are to be *preferred* for the manner in which they reproduce the true fragrance of the living flowers in the finished product,—not to mention uniformity of quality and odor fidelity, and their economy under present conditions.

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Future of Synthetics

Many soapers wonder what the long-time picture will be on production of synthetic detergents in comparison with that of soap. A spokesman for a company manufacturing both soap and synthetics states that soap is a generally better detergent, but that synthetics will find increasing use in washing glassware and dishes, woolens, colored fabrics, upholstery and rugs, and in shampoo and bath preparations. Industrial users will pay more attention to cost and continue to use soap where there is no pronounced reason to change.

However, the use of synthetics in proportion to soap will certainly increase, although soap tonnage will no doubt continue to outweigh the synthetics. There are many applications —and large ones tonnage-wise—where synthetics can do a better and more convenient, if not a cheaper job, especially in the hard-water areas of the country. It is not improbable that the potential tonnage may be five times the present production.

Meanwhile research will uncover more of the fundamental science of surface activity. One hopes that the complex factors entering into detergent action will become capable of analysis. More and more surface-active compounds can be expected, each tailor-made for a special use.

This prediction parallels experience in the dye industry. The large amount of research effort expended on dyes has not decreased the number produced to a few standard items. On the contrary, new dyes have been developed for new fabrics, to give new colors and permit new modes of application. It is not unreasonable to suppose that the synthetic detergent industry will follow the same course.

The synthetics are peculiarly suited to fit such a scheme. The methods by which they are made are capable of control to give a continuous variation in properties. The manufacturer may in the future be able to work out a practical compound with predictable properties to meet any application requiring a surface-active agent. *Chem. Industries* 58, 964-6, 973 (1946).

Gel Formation

Formation of gels by solutions of sodium palmitate and potassium stearate were studied, the former at concentrations ranging from 0.055 to 0.065 gram, and the latter from 0.010 to 0.020 gram per 10 cc. of pinene. The initial temperature was 140°C, and the final temperature approximately 50°C. reached in 8 minutes. The lower the concentration the faster the cooling. The curves for the two soaps were very similar and exhibited pauses at the points of setting. The temperatur-difference curves showed sharp maximum at the setting points, which were between 95° and 105°C. The heat of gelation increased with concentration. S. P. Adarkar and G. S. Hattiangdi. *J. Univ. Bombay* 14A, 23-6.

Alcohol Sulfates in Acid

Fatty alcohol sulfates decompose or hydrolyze in weak acid solutions. The rate of hydrolysis at boiling temperatures of the normal C_2-C_{12} alkyl sulfates in the form of sodium salts dissolved in normal hydrochloric acid varies with the length of the carbon chain and passes through a minimum at C_5. The alcohol sulfates above C_{10} are totally hydrolyzed after one hour under these conditions. The presence of sodium sulfate considerably reduces the rate of hydrolysis, while sodium chloride has a much smaller effect. G. Desseigne. *Industries corps gras* 1, 136-9.

Improved Heating Method

The advantages of hot water under pressure over steam as a source of heat in various phases of the fat, soap, and glycerine industries are pointed out. The utilization of hot water under pressure permits a more accurate temperature control and reduces loss by auto-vaporization, leakage, water purification, boiler scale, condensation, corrosion of conduits, etc. It results in a greater economy of fuel and lowers the cost of maintenance, overcomes some technical difficulties, and in general facilitates production and improves the products. R. de Saint-Martin. *Corps gra, savons 1*, 105-10.

Continuous Hydrogenation

Continuous hydrogenation of cottonseed, sesame, and safflower oils was studied with a view to converting these oils into a form more suitable for making soft soap, or as an edible fat. With cottonseed oil, the conversion of linolein to stearin predominated and no selectivity was observed with a high rate of flow. At lower rates of flow the olein to stearin reaction occurs. The same is true for sesame oil. Hydrogenation of safflower oil is selective with a high rate of oil flow. Linolein to stearin conversion predominates when linolein and olein are in the ratio of 1:1, while linolein to olein takes place when they are in the ratio of 1:0.25. R. V. Joglekar and S. K. K. Jatkar. *J. Indian Inst. Sci.* 23A, 139-57.

Calcium Sequestration

The calcium-sequestering ability of sodium polyphosphate water conditioners can be determined with good precision by titration with standard calcium chloride solution, using a filter photometer, and graphical computation to determine the point at which a precipitate first begins to form. Results should be expressed as grams of calcium sequestered by 100 grams of sample. Increasing concentration decreases the calcium value. Small differences in sample size do not greatly influence the precision of the method. Calcium values of different polyphosphates are affected in a marked and variable manner by the pH of the sample solution. In a number of cases increase in alkalinity increases the calcium value. Conditions of determination must be rigidly standardized. Any departure from these conditions should be noted in expressing results.

The calcium value obtained may have little connection with water-softening power under conditions of use. Where performance under conditions of actual use is required, the method may be modified, but only with the understanding that the resulting data cannot be compared directly with data obtained with the standard method. B. C. Hafford, F. Leonard, and R. W. Cummins. *Ind. Eng. Chem., Anal. Ed.* 18, 411-15 (1946).

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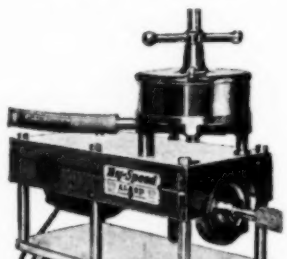

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By DR. E. G. THOMSSEN, PH.D.

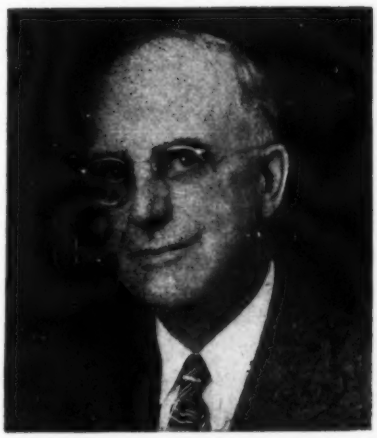
INDUSTRY is just beginning to realize that a man cannot be retired abruptly at a certain age and continue to be happy. Upon retiring, more men break from lack of employment than from the strain of constant work. Many a man who has retired with good health and financial independence finds himself very unhappy because he does not know how to use his spare time. The thrill of doing the things he has always wanted to do,—traveling, golfing, or fishing, becomes tiresome very quickly and life becomes a bore.

Two acquaintances come to mind who were retired in good health on half salaries at sixty-five. One had never learned to play or develop a hobby. After recovering from the first elation of being freed from the work he often indicated had restrained him from really enjoying life, he just sat around the house and moped. He died fifteen months after retiring.

The other man was more of the "sporty" type. He liked to frequent clubs, travel, and play golf, and had planned his retirement life proposing to do the things he had always wanted to do. He passed on just twenty-one months after retirement.

Such incidents are common in the lives of men who are retired around the age of sixty-five. Abrupt retirement is not the answer to this problem even when financial security is assured.

An industry-wide program of gradual retirement is called for and some companies are already following such plans, beginning with a partial retirement of their men at an earlier age. Under this plan, the employee is



gradually relaxed by an integrated reduction in responsibility and hours of work coupled by a period of education in the proper use of his leisure time and in the adaption of himself and his life to the new conditions. This is done by shortening the hours and the week, by assigning a younger assistant, and finally by retiring the employee from active participation in company business. The adjustment of salary is made gradually so that this important detail does not become a problem. Such plans are reported to be working out very well among the companies using them and indications are that the employees' life span, after retirement, is being greatly extended.

There is something to be gained by the employer in this arrangement besides the satisfaction he must feel in knowing his men still consider themselves a needed part of the company family rather than castoff old horses sent out to pasture. In many cases the success of the company has grown out of the lives and experiences of these very men, and it owes a certain responsibility to them. Concerns can use their valuable experience and knowledge by keeping such men on in a semi-active status, or an advisory capacity so that they can activate their latent abilities under working conditions, hours, and tempo more suitable to their age and health. By balancing work and retirement recreation, these men are happily contributing to the company's welfare and profits.

Old age activity is as much a problem of the employer as is old age security. It is a commendable credit to industry that, as the span of life expectancy increases, some progressive concerns are building up better employer-employee relations not only by pension systems adequate to keeping a man at a financial standard of living near to what he has achieved in his active years but also by retirement plans that help to make happiness for the retired employee. If all of industry will take an accounting of the trend of the times, it will realize that it has everything to gain by taking care of its own family and something to lose by leaving the job up to some other group in our national economy.

New Book on Polishes

There recently came to our desk an advance copy of "Modern Domestic and Industrial Polishes and Specialties" by W. D. John and published by R. H. Johns Ltd., Newport, Mon., England. This book, priced at $10.00, will find a place in the reference libraries of liquid wax, polish and certain sanitary supply manufacturers. It is a handy reference work to have around and about the only modern one that fully covers these products. The subject is presented in a comprehensive manner. Necessary raw materials, including the up-to-date ones in the synthetic chemical field, methods of turning them into finished products, a brief glossary of newer raw materials, and a well-arranged index are included. Over 700 modern practical formulas for polishes, floor waxes, floor oils, sweeping compounds, shoe polishes and cleaners, auto polishes, metal polishes, glass cleaners, household cleaners and miscellaneous products are covered. The theoretical part of the subject is compressed into a few pertinent character-

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istics of raw materials. The emphasis is put more forcibly on the empirical part of the subject. While certain of the formulas termed "practically and successfully developed modern formulae," are gleaned from pamphlets put out mainly by American raw material suppliers .o promote the sale of their products in the U. S., the procedure of repeating them in a book is not to be severely criticized. It is of decided advantage to have these formulas in a single place for ready reference.

As the author points out in presenting his book, the technical information, regarding the products covered, is quite incomplete and widely dispersed. In many cases it is presented from the theoretical rather than the practical standpoint. Manufacturers who are not in a position to undertake an extensive research program and who wish to have at hand a reference book will find this one of considerable value. The author has done a good job in collecting and clearly and tersely presenting his subject matter.

Corrosion Proof Coating

The action of chemicals, the elements and age upon walls, floors, machinery, piping, tanks, and many other objects around a plant presents a troublesome problem. Frequent painting, cleaning and patching have been necessary in the past. The Chamberlain Engineering Company, of Akron 9, Ohio, is one of the companies who have given this problem consideration. After considerable research upon the part of plastic and paint chemists they have developed "Neolac" to protect surfaces against such action. Their product may be applied to practically every surface, painted or unpainted, be it wood, metal, stone or iron. It protects against the action of many chemicals, resists heat up to 265°F., is easily applied by a brush or by spraying, air dries quickly, does not oxidize and is non-inflammable and non-toxic. It comes in several colors.

Non-Pulsating Pump

In Book 21, Robbins and Myers, Inc., Springfield, Ohio, describe the R & M Moyno Pump, an American improvement on a French invention. This pump gives continuous flow at positive pressure. It functions through the use of two helically shaped elements, a rotor and a stator. The rotor revolves within the stator and exerts a positive pumping action comparable to that of a piston moving through a cylinder of infinite length. The pump is self-priming, has positive displacement, gives a metered uniform flow, handles volatile or viscous liquids at a steady flow without pulsation, pumps abrasive solids in suspension, is easily reversible and possesses great durability. These pumps which are becoming increasingly popular are available in numerous sizes and ratings.

NAPA Booklet on Cleaning

An informative and useful 60-page booklet was published recently by the National Association of Purchasing Agents, New York, as a service to their members. The booklet was prepared by W. G. Morse, purchasing agent at Harvard University, who for ten years was a member of Committee D-12 on soaps and detergents of the American Society for Testing Materials.

The booklet describes the theory of cleaning, of wetting and dispersing agents, of hard water, and of alkalinity. It tells of the raw materials used in the compounding of cleaners as well as pertinent facts about detergents, soaps, and inorganic chemical cleaners, and gives advice on how to choose the proper cleaner for a particular job. Methods for cleaning dishes, laundry walls and woodwork, and floor coverings are suggested. An appendix listing the definitions and explanations of about 30 common terms used by the A.S.T.M. is helpful.

Mr. Moore's booklet, written in non-technical language and designed for the lay reader, will be of particular interest to buyers and users of soaps and cleaning materials.

Potash Silicate Folder

A new folder was recently released by the Philadelphia Quartz Co., Philadelphia, describing the use of "Kasil" potassium silicates. These silicates, "Kasil No. 1," "Kasil No. 2," and "Kasil No. 6," are now available in liquid form in drums and tankcars. Small additions of potassium silicate to liquid soaps are said to improve the detergent value. There is a possibility of incorporating potassium silicates into the bar type soaps to obtain fast sudsing qualities.

New Acid-Alkali Indicator

A sharp indicator for acid-alkalinity control, manufactured by TruTest Laboratories, Inc., Philadelphia, is claimed to give accurate pH control in the methyl-orange pH range without the indistinct endpoint difficulty associated with the use of methyl orange. The indicator changes from green on the alkaline side to an intermediate gray to a definite purple on the acid side, or vice versa. The gray tint provides a convenient warning of the approaching endpoint. The indicator is available in 1-, 2-, 4-, 8-, 16- and 32-oz. bottles with plastic closures and droppers.

New Carbon Tet Folder

Information for foremen on the safe use of carbon tetrachloride is available in a folder issued recently by Safety Research Institute, New York. The folder entitled "How to Use Carbon Tetrachloride Safely" gives information on the proper handling and storage of this solvent and directions for first aid in case of accident. Copies are available from the Safety Research Institute.

Twitchell Products Booklet

Section II of "Emeryfacts", a loose-leaf booklet describing the chemistry and uses of fatty acids derived by the Twitchell process, was recently released by Emery Industries, Inc., Cincinnati. This booklet offers information on the use of soluble oil Twitchell bases for metal working oils.

Sabadilla Booklet

A compilation of recent insecticidal tests of sabadilla used on many agricultural pests as well as toxicological studies of sabadilla used against the white rat was recently published by the Department of Economic Entomology, University of Wisconsin in cooperation with the U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine, Wash-

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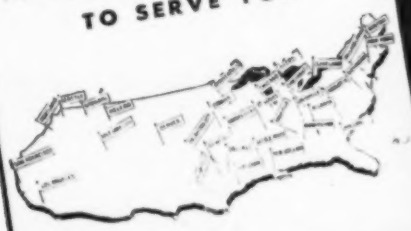

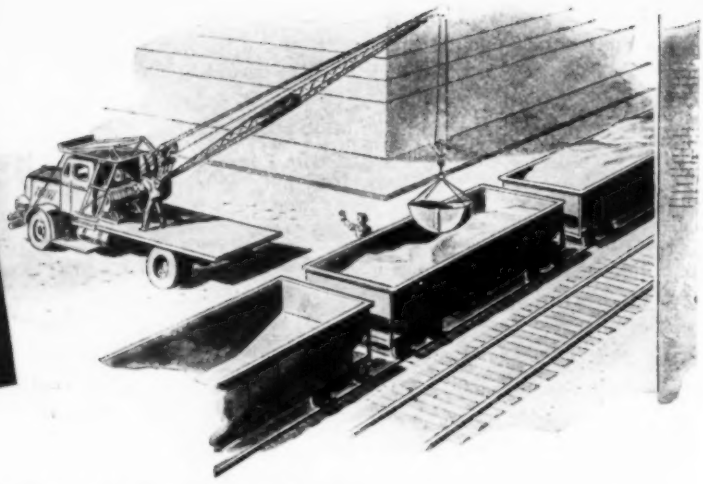

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ington, D. C. The compilation of information from universities, state agricultural experiment stations as well as from private sources is printed in the form of a 50-page booklet.

"Dreft" for Dairy Use

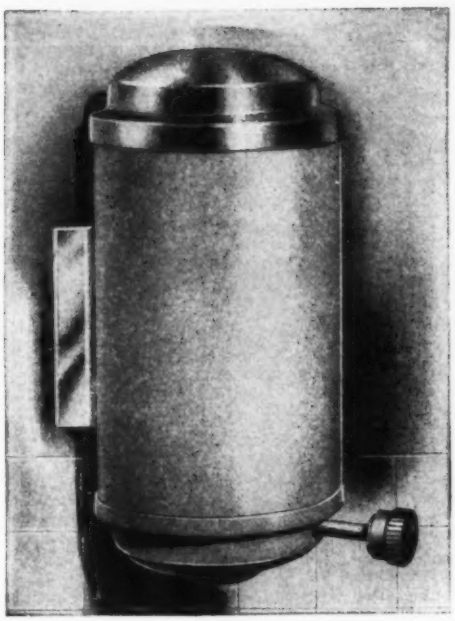
Procter & Gamble Co., Cincinnati, O., is using space in farm publications to promote the use of "Dreft" powdered soap for cleaning dairy utensils. Formerly suggested chiefly for light laundry and kitchen work, "Dreft," it is claimed, cuts grease, penetrates milk scum and eliminates milk stone on dairy barn equipment. A booklet explaining procedure for such use of "Dreft" is offered and announcement is made that a motion picture, entitled "A Fast Worker," showing "Dreft" in action in the dairy barn is available for showing at farm organization meetings.

Powdered Soap Dispenser

Presto Mfg. Co., 768-770 Cromwell Ave., St. Paul 4, Minn., has announced a new powdered soap dispenser with rotary brush which discourages caking and meters a positive amount of soap with each turn of the handle. Two models are available, holding either 22 or 16 ounces.

Givaudan Offices Moved

The Detroit and Philadelphia offices of Givaudan-Delawanna, Inc., New York, manufacturer of perfume raw materials, have been moved to larger quarters in the Ford building and 215 South Broad St., respectively. The Detroit office is managed by J. K. Stevenson, recently returned from the Air Forces, and the Philadelphia branch by R. C. Morgan, who joined the company shortly after leaving the armed forces in 1945.



The new powdered soap dispenser illustrated, designated as No. 700, is a product of Fuld Brothers Inc., Baltimore. It is of steel construction with chrome plated top and crinkle finish. It holds approximately 10 ounces and dispenses 1/30 ounce oer push. It is provided with a concealed wall mounting and nonclogging agitator.

WASHINGTON OUTLOOK

(*From Page* 42)

are so large that some people feel they strengthen the case for decontrol. They also tend to cause non-refiners to withhold their sale of crude to refiners.

Another series of Washington developments this month was connected with the investigation of the House Small Business Committee into alleged monopolistic practices in industry. The House Small Business Committee, which originally planned to start a searching inquiry on October 15 into all monopolistic practices in manufacture and distribution (with special attention to be given to fats and oils) decided later not to hold such hearings. Instead, it is expected to make a comprehensive report to Congress around the middle of December covering practices which it regards as harmful to the interests of small business and as justifying regulatory or punitive legislation.

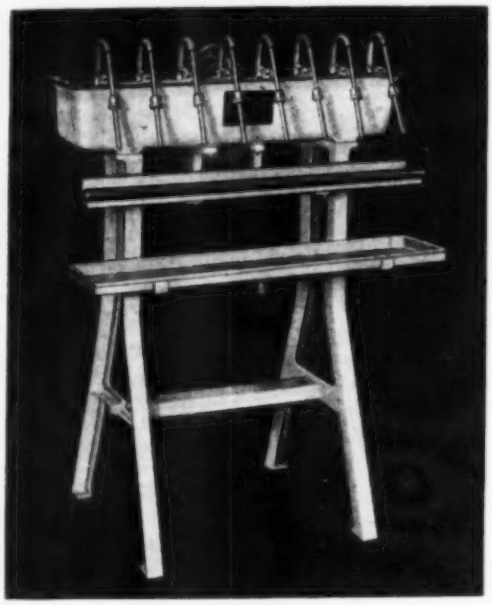
AS to the future fat supply outlook for the soap industry, apart from price considerations and government controls, the immediate soapmaking fat and oil supply situation is not good, but prospects for the new term are encouraging. Representations have been made in Washington that some manufacturers are producing only fifty per cent of what used to be their quotas due to their inability to purchase enough fats and oils. Tallow and grease production in October was low and indications are that it will remain that way into November. Marked improvement is expected in December, but it is not likely to bring the total for the last quarter up to the average in recent years, which is around 440 million pounds. Expectations are around 500 million pounds in the first quarter of 1947.

It is questionable whether palm oil imports will be other than negligible during the next two or three years.

Coconut oil imports in 1947 may exceed 600 million pounds, but decontrol of fat and oil prices in the United States is giving political leaders in both our country and the Philippines concern as to whether shipments will be sustained if prices to Filipinos are not adjusted in line with the rise in prices of decontrolled fats and oils in the United States.

Anticipated recovery of oil, refining foots and fatty acids from the current season's crushings of cottonseed, corn and soy beans is expected to be in line with recovery last year. The linseed oil situation continues to be critical. Everyone seems to be looking forward to marked improvement in overall fat and oil supply during 1947.

The appointment of George T. Collins as manager of the market research department of Pennsylvania Salt Manufacturing Co., Philadelphia, was recently announced.



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PRODUCTS AND PROCESSES

Liquid Dentifrice

A liquid dentifrice may be prepared as follows:

Sodium alginate ..	4.0	gr.
Distilled water	200.	cc.

Mix and let stand overnight, then add:

Saccharin, soluble .	0.25	gr.
Distilled water	20.0	cc.

To the mixture add:

Flavor	8.0	cc.
Alcohol	100.0	cc.
Glycerine	40.0	cc.

Mix well and add to:

Sodium lauryl sulfate	20.0	gr.
Distilled water	150.0	cc.

Finally add:

Amaranth solution, 5 per cent	1.0	cc.
Distilled water, to make	500.0	cc.

Homogenize the mixture before bottling. R. S. Englehardt, *Bull, Am. Coll. Apoth.* 7, 6 (1946).

Phosphate in Synthetics

Addition of 0.001-3 per cent by weight of an alkali phosphate to detergents of the sodium alkyl sulfate type results in substantial freedom from corrosion effect, good color stability, high solubility, and improved foaming without substantial modification of detergent properties. R. P. McGhie, to Colgate-Palmolive-Peet Co. U. S. Patent No. 2,394,320.

Bottle Washing Agent

Zinc oxide is heated with hydrated, molten caustic soda in definite proportions and at a specified temperature. The mass is then passed through a flaking machine to give a product useful in bottle-washing. W. F. Wegst, L. R. Bacon, and R. McNabney, to Wyandotte Chemicals Corp. U. S. Patent No. 2,403,157.

Aerated Soap

Aerated soap containing microscopic bubbles uniformly distributed throughout the detergent mass is made by subjecting any of the usual laundry or toilet soap stocks to intensive working at temperatures and pressures sufficient to make the soap semifluid or plastic. The temperature required is inversely proportional to the moisture content of the soap, and the pressure is varied in direct proportion to the temperature. J. W. Bodman, to Lever Brothers Co. U. S. Patent No. 2,398,776.

Phosphated Detergent

A detergent composition having improved cleaning ability, consists of an alkali-metal salt of a sulfonated alkane containing 10-18 carbon atoms and a water-soluble salt of a polyphosphate. O. Lind, to The Procter & Gamble Co. U. S. Patent No. 2,369,278.

Glass Cleaner

An inexpensive paper polisher suitable for cleaning glass or metal surfaces without the use of water, is obtained by treating porous, unglazed paper with a warm mixture of glycerine, powdered silica of 300-400 mesh, and water. The finished paper is 15-20 per cent heavier than the untreated paper. R. M. Schlabach. U. S. Patent No. 2,386,066.

Mechanics' Hand Soap

A detergent in paste form having the composition of 20-35 per cent of heavy petroleum oil distillate, 20-35 per cent of a sodium petroleum sulfonate, 20-35 per cent of water, and 20-30 per cent of a finely divided, nonabrasive, absorbent material such as wood sawdust, is effective for removing grease from the hands. J. C. Showalter, to Standard Oil Development Co. U. S. Patent No. 2,392,779.

Sea-water Detergent

An inexpensive detergent effective in hard water, sea water, or acid solution, is obtained by combining with a water-soluble soap containing 10-20 carbon atoms, from 25 to 54 per cent of a particular type of mixture of alkyl aromatic sulfonates. The aromatic sulfonates are mixtures of substituted derivatives of aromatic sulfonates containing not more than 2 benzene nuclei in the aromatic radical and of which a substitutent in the aromatic radical contains 12-16 carbon atoms, derived from a hydrocarbon mixture of the type of petroleum distillate of which at least 80 per cent distills between 210 and 275°C., and over a maximum range of 55°. L. H. Flett, to Allied Chemical & Dye Corp. U. S. Patent No. 2,390,295.

High Sudsing Soap

A high-quality but relatively inexpensive toilet soap having a high sudsing rate yet being free from low-carbon fatty acids, consists of a major portion of an alkali metal soap from a tallow soap stock, together with 0.5-1 per cent by weight of alkali sulfonates of aliphatic hydrocarbons containing 12-14 carbon atoms, and 1-5 per cent of saponified hydrogenated rosin. L. Safrin, to Wilson & Co. Inc. U. S. Patent No. 2,388,767.

Cleaner for Tin

An alkaline detergent consisting of sodium or potassium metasilicate 60-93 per cent, alkali metal perborate 3-20 per cent, water-soluble salts of zinc and magnesium 0.1-10 per cent each, and low-ratio alkali metal silicate 1-10 per cent, is effective for cleaning tin without causing corrosion. Tin immersed in a boiling solution of the cleaner showed no weight loss. C. Schwartz. U. S. Patent No. 2,391,647.

Diglyceride Detergent

Salts of the sulfuric acid esters of glycerol which have been esterified by two fatty acid molecules, such as salts of the ester of dilaurin, are suitable for formation into detergent bars or cakes. Such bars can be processed by the usual soap-making equipment, are not sticky, and do not dissolve away too quickly. E. E. Dreger and A. C. Bell, to Colgate-Palmolive Peet Co. Patent No. 2,385,614.

Soap Processing

The process and equipment for making smooth and homogeneous soap are described in which the soap is progressively cooled to the free-flow point while being subjected to induced turbulence. M. H. Ittner, to Colgate-Palmolive-Peet Co. U. S. Patent No. 2,377,424.

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No. 2,406,902, Soap-Like Preparations, patented September 3, 1946 by Albert L. Rawlins, Grosse Pointe Woods, Mich., assignor to Parke, Davis & Co., Detroit. A lathering soap-like preparation comprising a germicidal mixture, free from skin-irritating properties, consisting of a substantially non-lathering germicidal water-soluble high molecular weight quaternary ammonium compound and a substance of the class consisting of a water-soluble acid addition salt of hexadecyl amine, a water-soluble acid addition salt of octadecyl amine and mixtures of said acid addition salts, said germicidal mixture being free from skin-irritating compounds and salts of amines of higher molecular weight than octadecyl amine and lower molecular weight than hexadecyl amine and the weight of said substance in said germicidal mixture ranging from about three times to about four times the weight of said quaternary ammonium compound.

No. 2,406,990, Antifungus Wrapper, Etc., patented September 3, 1946 by George C. Borden, Jr., and Karl R. Karison, Easton, Pa., assignors to Riegel Paper Corp., New York. An anti-fungus wrapper made of moisture-resistant coated paper, having as an effective high boiling anti-mycotic agent a small percent of a lower dialkyl dichloro succinate incorporated in the coating, said anti-mycotic agent slowly vaporizing over a prolonged period of time.

No. 2,407,041, Insecticide, patented September 3, 1946 by Benjamin H. Thurman, Charlotte, N. C., assignor by mesne assignments, to Benjamin Clayton, Houston, Tex., doing business as Refining Unincorporated. An insecticide of the stomach poison type consisting essentially of an aqueous dispersion of a crude vegetable oil phosphatide and a stomach poison comprising a finely divided slightly water soluble compound selected from the group consisting of arsenates and arsenites of polyvalent metals, the proportions of phosphatide and polyvalent metal compound ranging between approximately 1 part phosphatide and 2 to 8 parts polyvalent metal compound.

No. 2,407,130, Method of Making Salt Water Soap, patented September 3, 1946 by James Blades, Barberton, Ohio, assignor to Kamen Soap Products Co., New York. The process of making a salt water soap consisting in heating a mixture of substantially 5.55 parts by weight of naphthalene and of substantially 15.45 parts by weight of lauryl alcohol at a temperature of about 40° C. when a slurry is formed, thereupon cooling the resulting slurry to a temperature of about 20° C., thereupon slowly adding about about 20.4 parts by weight of fuming sulphuric acid while maintaining the temperature below about 25° C. to form a sulphonated mass of naphthalene and lauryl alcohol, then raising the temperature to about 30° C. and holding at this temperature for about 3 hours, thereupon mixing the resulting liquid with an aqueous alkali metal hydroxide solution to substantially neutralize the same, thereupon mixing said substantially neutral sulphonated mass with about sixty parts by weight of body forming substances consisting principally of anhydrous soap and water and cooking until a suitable form retaining substance is produced.

No. 2,407,205, Insect Repellent, patented September 3, 1946 by Benjamin G. Wilkes, Wilkinsburg, Pa., assignor to Carbide and Carbon Chemicals Corp., New York. A method of repelling insects which includes applying to a zone to be treated an insect repellent comprising as an essential repellent ingredient thereof 2-ethylhexanediol-1,3.

No. 2,407,333, Fumigation Method, patented September 10, 1946 by Peter R. Wenck and Walter A. Henson, Midland, Mich., assignors to The Dow Chemical Co., Midland. The method which comprises fumigating a space wherein the principal known living things subject to destruction by fumigation are micro-organisms, with a lethal concentration in air of a toxicent selected from the group consisting of 2-bromo-2-methyl propane and 2-iodo-2-methyl propane.

No. 2,407,647, Synthetic Organic Nonsoap Detergent in Bar Form and Process of Making Same, patented September 17, 1946 by John W. Bodman, Winchester, Mass., assignor to Lever Brothers Co., Cambridge, Mass. A process for making a coherent and coalescent bar of a normally non-liquid synthetic organic non-soap detergent compound having surface active properties, said bar having an aerated continuous mass of fine texture and firmness comprising subjecting a mass of a normally non-liquid synthetic organic non-soap detergent compound having surface active properties having a moisture content of less than about 35 per cent to a temperature of the order of 100 to 200° F., working the mass in the presence of a compatible gas under pressure, and thereafter forming the mass into bars or cakes.

No. 2,408,155, Composition for and Method of Cleaning and Coating Metal, patented September 24, 1946 by Sydney G. Thornbury, Los Angeles, Calif., assignor to Turco Products, Inc., Los Angeles. A composition for removing oil, grease, metal oxide and the like from and depositing a metallic phosphate coating on metal which comprises a solution consisting of water, phosphoric acid, aromatic petroleum solvent, and a coupling agent comprising, by weight, 25-33 per cent of butanol and 21-29 per cent of ethanol.

No. 2,408,307, Insecticide, patented September 24, 1946 by Samuel I. Gertler and Herbert L. J. Haller, Washington, D. C., assignors to The United States of America as represented by the Secretary of Agriculture and his successors in office. An insecticidal dust composition comprising acetophenone semicarbazone in the form of an impalpable powder admixed with a solid diluent.

Fat from Bacury Nut

The dark shell of the bacury nut (*Platonia insignis, Mart.*) gave 5.7 per cent of fatty substance and the kernel gave 51.3 per cent. Analyses showed that the probable chemical composition of the fatty acids is stearic 28 per cent, palmitic 28, oleic 39, and lineolic 4 per cent. E. Pechnik and J. M. Chaves. *Rev. quim. ind.* (Rio de Janeiro) *14, No.* 163,18-19.

Alkalinity Regulator

Alkalinity is automatically regulated in laundry washing tanks by means of a hydrometer float which interrupts a beam to a photocell, which in turn controls a feed mechanism. T. A. Martin. U. S. Patent No. 2,382,648.

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NEOPONE R	ULTRAPONE DL
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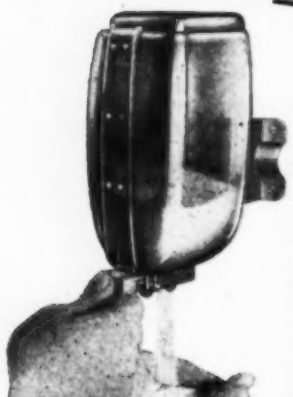

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Water-softening Phosphates

New alkali metal phosphates of particular use as water softeners are formed by heating powdered phosphoric anhydride with a trialkali metal orthophosphate in a molal ratio of 1 to 2 or 3, at 300-525°C. The new phosphates are distinguishable from previously known phosphates both in structure, which is not yet completely determined, and in properties. In comparison with an aqueous solution of sodium tetraphosphate which has a pH of about 8.5, the same concentration of the new sodium phosphate has a pH of 9 to 10. Sodium tetraphosphate and sodium hexametaphosphate form a precipitate with an aqueous solution of zinc acetate, but the new phosphate takes much longer to form a precipitate and the precipitate formed is of a different character and appearance. In an aqueous solution of barium chloride, hexametaphosphate and tetraphosphate form no precipitate, while the new phosphate forms a substantial precipitate immediately.

New alkali metal phosphates are also prepared by treating monosodium dihydrogen phosphate with a trialkali metal orthophosphate in a molal ratio between 2 to 1 or 2, at a temperature corresponding to from dull to bright red heat, a temperature below the fusion point of the reactants and below the disintegration temperature of the product. L. Meites. U. S. Patent No. 2,385,928.

Effect of Radioactivity

Several processes appear to be involved in the decomposition of a fatty acid molecule by radioactivity or alpha-particle bombardment. They are (1) dehydrogenation, (2) decarboxylation, (3) formation of low molecular-weight, water-soluble acids, (4) formation of methane and higher hydrocarbons, and (5) production of carbon monoxide and water. The predominant processes are dehydrogenation and decarboxylation. There is some evidence that these two processes do not occur in the same molecule. Fatty acids can therefore be converted to the hydrocarbons found in petroleum crudes by exposure to radioactivity. C. W. Sheppard and V. L. Burton. *J. Am. Chem. Soc. 68;* 1636-9 (1946).

Clear Liquid Soap

The cloudiness which results when liquid soaps are stored in glass containers, from attack on the glass by the alkalinity of the soap solution, is prevented by adding 0.07-2 per cent of commercial sodium silicate to the soap, heating to 70°C., allowing to stand for a week, cooling to 4°C. and filtering. The resulting liquid soap contains 0.022-0.016 per cent of a soluble form of silica which prevents solution of the glass container. H. Kranich. U. S. Patent No. 2,402,557.

Method of Analysis

Methods of analysis are given for a number of types of surface-active agents and illustrated by the methods applied to "Igepon T," "Nekal," and "Emulphor." Normal methyl taurine is isolated from "Igepon T." "Nekal" is shown to be a mixture of sodium 1-isopropyl-2-naphthalene sulfonate and sodium 1-butyl-2-naphthalene sulfonate. "Emulphor" can be identified by the production of ethylene oxide gas and a fatty alcohol. A. Parisot. *Corps gras, savons L,* 11-14.

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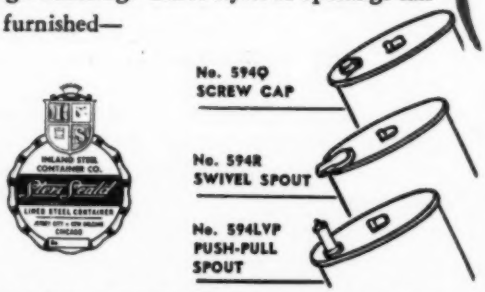

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Petroleum Base Soap

Further information has been released within recent weeks concerning the new petroleum base soap being produced by Standard Oil Co. of California and marketed by the Oronite Chemical Co., New York, a subsidiary. The new soap powder called "Oronite" detergent is a neutral product resulting from the chemical combination of a strong alkali and acid. It is claimed to be particularly mild in its action on delicate materials. The finished compound consists of white, free-flowing particles, similar to other soap powders, and is used in much the same way. A small amount is said to foam up into abundant suds in any kind of water, either hard or soft. According to the company, one teaspoonful is sufficient to wash a pan of dishes.

Among the industrial uses on which successful tests have been made are for cleaning dairy and food processing equipment and containers and general plant sanitation; various purposes in leather, textile, pulp and paper manufacture; ore processing as a flotation medium, and insecticides and weed killers to improve wetting and spreading.

The new product is being offered to soap companies for packaging and distribution to the consumer under their own brand names and through their own outlets. While it is being offered in powder form at present, it is reported possible to turn it out in cake form. The new powder has no odor, but can be perfumed.

Oronite reported that one major soap company began a few weeks ago to make a private test of consumer acceptance in two markets, putting the product out under its own brand name. For industrial uses, Oronite will sell directly to users.

The company at present has facilities for turning out 100,000,000 pounds of the new powder a year and further production is possible as soon as facilities are expanded. Full production and marketing to both the consumer and industry are expected to be reached soon after the first of the year.

Another Petroleum Soap

Notice of a new petroleum-derived detergent was released October 17th by Dr. Chester M. Suter, associate director of Sterling-Winthrop Research Institute, Rensselaer, N. Y., at a meeting of the Philadelphia section of the American Chemical Society. The new product is the result of a new method of sulfonating petroleum compounds which is claimed to create a detergent with good foam formation, stability in hard water, and high washing power. With such properties, the new compound will enter the field as a soap substitute. It is interesting to note that this is the third report within two months of a petroleum-derived product being offered in competition with soap.

Soap Extender

A soap extender of interest in numerous textile applications is "Burk-Schier XX-T," made by Burkart-Schier Chemical Company, Chattanooga. It is claimed that the product can be substituted pound for pound for a considerable percentage of soap.

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Solubilizing Power

Solubilization of organic liquids such as paraffinic liquids including hexane, aromatic liquids including benzene, and polar compounds including acids, ethers, esters and higher alcohols, by detergents is attributed to incorporation of the insoluble substance within and upon the colloidal particles or micelles of the soap or other detergent. Although many instances of this action have been reported, this is the first systematic investigation of the characteristics of an insoluble organic substance that determines the extent to which it is solubilized. A number of cation-active and anion-active detergents have been used with a series of hydrocarbons and a number of polar compounds. Substances of very low molecular weight are freely solubilized, but the extent of solubilization falls off rapidly with increase in molecular weight or molar volume. Polar compounds are more readily solubilized than hydrocarbons.

Dodecylamine hydrochloride, potassium laurate, and "Emulsol 607L" have the same 12-carbon chain in common, but for hydrocarbons and many other liquids, potassium laurate possesses only a small fraction of the solubilizing power of dodecylamine hydrochloride. The cation-active detergents are better solubilizers than the anion-active detergents, although there are distinct differences within each group.

Cetyl pyridinium chloride is rather like dodecylamine hydrochloride in spite of its 16-carbon chain, but is usually more effective in solubilizing. In some cases it is equalled by the 12-carbon "Emulsol 607L," but usually the latter is far less effective and in one case falls even below the laurate. Sodium oleate, with 18 carbon atoms, exhibits intermediate values for the paraffinic and cyclic hydrocarbons but excels in solubilizing aromatic and polar compounds. It is therefore clear that neither the carbon chain of the detergent nor its polar groups alone determine the solubilizing power, but that certain favorable and unfavorable combinations, as well as occasional specificities, overlie the general regularities observed. J. W. McBain and P. H. Richards. *Ind. Eng. Chem.* 38, 642-6 (1946).

High Pressure Hydrolysis

Fat hydrolysis at 220-225°C. permits stable emulsification and can be carried to 95 per cent hydrolysis in a four-hour cycle without any catalyst or emulsifier. This process saves the cost of added reagents, and avoids contamination of the reaction products. Equipment for processing 35-40 tons of fat daily needs only 8 by 14 meters of floor space in a room 10 meters high. Glycerine yield is high because of nearly complete hydrolysis without contamination. A flow chart is shown. P. V. Naumenko. *Pishchevaya Prom.* 1945, No. 2, 39.42; through *Chem. Abs.*

Increasing Soap Lather

During the war when the Germans used every possible means of stretching their oil and fat supplies, their researches led to a unique method of improving the lathering of soap. Nitric oxide, a colorless and odorless gas, was passed through the soap solution before the salting-out process until no more was absorbed. The soap afterward was said to give a thicker and finer lather than without this treatment. The technique may be worth investigating, although no reason is given and it is difficult to postulate one. *Perfumery & Essen. Oil Record* 37, 147 (1946).

Bleaching Soaps

Vegetable or animal oils and fats are bleached by adding a clay and then sulfuric acid of less than 60°Be. strength. The mixture is stirred cold and afterwards heated to 85-90°C. C. L. G. Budde. Danish Patent No. 58,629.

Antioxidant

Rancidity in edible oils, fats and waxes is inhibited by the addition of substituted beta - mercaptopropionic acids. M. F. Cribbins, F. W. Miller, Jr., and D. K. O'Leary, to E. I. duPont de Nemours & Co. U. S. Patent No. 2,397,960.

Treatment of Bedclothes

Application of emulsified mineral oil in an amount of 1-3 per cent of the dry weight of fabric, reduces the dispersion of dust and bacteria from bedclothes by more than 90 per cent. Water-soluble polyvinyl alcohol, esters, ethers of polyethylene glycols etc. are much less effective than the oil. Suitable emulsions are (1) mineral oil 88 per cent, oleic acid 8.9, triethanolamine 3.9, lecithin as an antioxidant 0.01 per cent; (2) mineral oil 87 per cent, "Triton NE" 13 per cent. Of these the first yields the finest emulsion but tends to turn rancid and to separate on storage. Emulsions made with other emulsifiers such as potassium or sodium soaps, dioctyl sodium sulfosuccinate, "Ninol," "Dreft," "Tergitol," propylene glycol or glycerol monooleate or monostearate, gelatin, quaternary ammonium salts, were not as satisfactory.

The method of application of the emulsion to cotton and woolen fabrics is given. Variations of pH, temperature, and of concentration within certain limits, do not affect results appreciably. T. T. Puck, O. H. Robertson, H. Wise, C. G. Loosli, and H. M. Lemon. *Am. J. Hyg.* 43, 91-119 (1946).

Bisulfite Polymerization

Aliphatic sulfonates of high molecular weight are prepared by polymerizing ethylene or propylene in the presence of sodium bisulfite. The latter compound breaks up and one of the cleavage products attaches itself to one end of the polymerization product while the other one forms the end group at the other end. This is an application of a general reaction which had previously been found to occur on reaction of ethylene and carbon terachloride. W. E. Hanford, to E. I. du Pont. U. S. Patent No. 2,398,426.

Low-viscosity Tall Oil

The resin acids which crystallize or which increase the viscosity of tall oil are selectively treated with sulfuric acid, resulting in a stable oil of controlled viscosity which does not tend to crystallize. W. H. Jennings, to Camp Manufacturing Co. Inc. U. S. Patent No. 2,398,312.

SANITARY PRODUCTS

A SECTION OF SOAP

FUMIGATION of domestic premises thus far in 1946 shows a decline variously estimated by pest control authorities at between 60 and 85 per cent. This type of work in the past has been directed mainly against bedbug infestations. That the wide use of DDT is the chief cause of this drop in household fumigations is quite generally known and accepted in the pest control industry.

But in spite of this decline, a more than compensating growth in industrial fumigations and allied pest control work shows the average operator with a considerable net increase thus far over last year. In fact, industrial pest control has expanded sharply. The immediate cause is given as the growing intensity behind the enforcement of the federal Food, Drug and Cosmetic Act, as well as behind state and local sanitary codes. What has amounted to almost a country-wide drive has been noted for the past several months.

The net result cannot help but mean improvement in rodent and insect control and better sanitation in industry, especially the foodstuffs, confectionery, bottling and allied fields. Every dollar being spent today on this expanded industrial pest control work is a direct contribution to improved sanitation where it has most been needed.

ADMITTEDLY, the greatest present obstacle in the expansion of sales of aerosol insecticides for home use is the high price at which they have to be sold. But from the dozen and one reports and rumors being passed around the industry, the solution of the price problem is not far distant. To produce and market a cheap "beer can" type aerosol has been the aim of most manufacturers. For industrial uses, this low-cost dispensing unit is not so essential, but for home use, it opens the door to wider expansion. Three new type gas propellents, all low pressure materials suitable for "beer can" dispensing, are the ones we have heard most about lately. There may be others still in developmental stages. Based on the new gases, wide development during 1947 of the low-cost aerosols has been predicted. By the time the 1948 consuming season rolls around, the complexion of the household insecticide market could conceivably have changed to a point where we would hardly recognize it.

DISPUTES between Kenya producers of pyrethrum and American processors which involve higher import costs have focused attention on present pyrethrum prices. Without going into the facts of the controversy, the long range effects of current high pyrethrum costs are worth consideration. At higher price levels, pressure against expanded use of pyrethrum in insecticide combinations, or against a continuation of the present rate, increases. In the face of new insecticide developments, pyrethrum stands in an uncertain position marketwise and there is nothing much which American processors can do about it while their costs mount higher. Present prices, as Kenya producers must realize, constitute an open invitation for the return of Japanese pyrethrum and its development elsewhere. Thus, it would seem that some assurance of lower future prices from Kenya would aid the basic market position of pyrethrum in America.

The higher the price of pyrethrum, the greater are the research efforts to find something which will exactly replace it. For many uses, American insecticide manufacturers prefer pyrethrum, but the price can go to a level where they are forced to use other things.

Present Status of Repellent "448"

As a result of stimulated research programs during the war, several new chemicals have reached the insect repellent market designed to offer the consumer much greater satisfaction than did the citronella compositions of prewar years. The new repellents are effective, colorless, almost odorless liquids which offer protection from mosquitoes for as long as three to five hours after application. Many new chemicals were tested during and after the war by private industry, by state, government, institutional, and university laboratories as well as by the cognizant branches of the armed forces.

In the last years of the war, the Navy, working along its own lines of approach, investigating the use of certain derivatives of alicyclic alcohols finally arrived at the use of 2-cyclohexyl-cyclohexanol and 2-phenyl-cyclohexanol in a 30/70 ratio by volume which they claimed to be particularly effective against several species of mosquitoes in tropical areas. The new mixture, known as "NMRI 448," or "448" for short, was tested at the Naval Medical Research Institute, Bethesda, Md. (from whence it derives its initials) by workers under the direction of Lt. Commander M. Pijoan and Lt. L. A. Jachowski, Jr. During these years, the U. S. Department of Agriculture had also done work on these compounds at their laboratories at Orlando, Florida, and on March 5, 1946, a U. S. public service patent, No. 2,396,031, was issued to Jones and Travis claiming an insect repellent composition containing 2-phenyl-cyclohexanol and also disclosing the use of 2-cyclohexyl-cyclohexanol for insect repellent purpose.

The Naval Medical Research Institute's report No. 9 of research project X-168 offers data on field tests in the tropics showing that the period of protection offered by "448" against various species, ranged from 5 to 10 hours. (*See table* 1.)

TABLE 1

Species repelled	*Average period (in hours) affording complete protection*
Aedes aegypti	
A. taeniorhynchus	5
A. euplocamus	5-6
A. augustivitatus	10*
Anopheles albimanus	11*
A. darlingi	9*
A. pseudopunctipennis	10*
Psorophora ferox	10*
Uranotaenia spp.	10*
"Bedbugs"	12*
"Sandflies"	4*
Mites: "Chiggers"	8*

* Indicates that tests were interrupted.

In the Navy tests, which were run under actual or simulated tropical conditions, four drops of repellent were applied to the face or neck, four drops to each arm, and six drops to each leg.

Repellent "448" is a clear, moderately viscous, non-greasy liquid produced commercially by a single step hydrogenation of 2-hydroxy diphenyl—(Dow Process). It is used full strength but tends to solidify at about 74° F. (20°-28° C.), a temperature under which it is likely to be used in the temperate zone. Ethyl alcohol will lower its crystallization temperature and a number of tests were run to determine its repellency at various concentrations. Report No. 10 of project X-168 pointed out: "A solution of ethyl alcohol containing 80-85% NMRI-448 yields a protection period of 310-340 minutes and the temperature required for crystallization is from 4° C. to −3° C., rendering the repellent suitable for practically all environmental conditions in which biting insects may be found."

NMRI-448 has suffered, as have many other products of the research laboratory, as a result of publicity from enthusiastic sources presenting claims yet to be substantiated with sufficient evidence. It was not the repellent used by the armed forces in the Pacific Theatre of Operations. Just about the time that the work on "448" was progressing in high gear and publicity was coming out about the findings of experimental tests, the war ended. The whole program became bogged down as the pressure of war was relaxed and the confusion of demobilization descended on the armed forces. Because the Navy's military interest in repellents became less immediate, no quantity of the new "448" was bought and none was used by the Navy except for the experiments. The repellent had not passed the joint Army-Navy specification at the time the War ended and, according to tests run at the Mellon Institute, "448" rated a grade of 8 on skin sensitization tests, the passing grade being 7 or less. However, its toxicity was also investigated at the Naval Medical Research Institute where 15 mg. of the repellent were fed daily to mice which showed no ill effects after three months of such feeding. Chemical Foundation, Inc., stated that human subjects applied "448" to their arms twice daily for a period of three months and no reaction was produced by such use. "While it is entirely conceivable that some rare individuals may be allergic to the

phenol derivatives in the repellent," says Chemical Foundation, Inc., "over 100,000 2-ounce bottles of repellent '448' have been distributed commercially with but few users reporting skin erythema. No cases of dermatitis have been reported." However they warn, "care should be exercised to avoid applying the repellent too close to the eyes and mucous membranes."

Limited field tests on mosquitoes show that mixtures containing 60% "448" were only about 40% to 50% as long lasting against New Jersey salt marsh mosquitoes and about 80% as long lasting against the yellow fever mosquitoe as was ethyl hexane diol, an ingredient in a repellent used successfully to repel malaria-carrying mosquitoes in the Pacific campaign. The data prompting this observation are compiled in table 2.

TABLE 2

Test Species	*Time in minutes to first bite* ethyl hexane diol	"448"
	Minutes	*Minutes*
Aedes sollicitans	360	165
" "	360	165
" "	360	185
" *aegypti*	480	420
" "	540	420
" "	360	300

IT is evident that more work should be done on "448" and it appears that this research will be furthered under peace-time conditions. Under the Navy policy, research workers are permitted to patent their findings even though working on public funds and under specific assignment. A patent application for NMRI 448 made by Pijoan and Jachowski, based on the claim of synergism, was assigned to Chemical Foundation, Inc., New York, which is licensing various companies the right to market "448" under the pending patent. This organization was set up after the first world war, under a non-profit charter, to see that the many German chemical patents were fairly distributed among the members of the newly-founded American chemical industry. Under the Foundation's system of licensing, any *bona fide* company may market "448" if they pay a royalty of 30c a pound of "448" used in the formulation. This seems a little high, but with two ounces of the product containing 60% "448" selling at from 65c to 75c, the royalty figures to be only about 3% of the retail price. The funds from these royalties, after deductions for expenses, will be used to further repellent research at the various universities, it is stated by the Foundation. So it may be that Pijoan and Jachowski will be able to continue their researches on "448" after release from the Navy.

The formula being recommended by the Chemical Foundation consists of 60% "448," 38% alcohol, and 2% water. Denatured ethyl alcohol of formula 39c or 40 is claimed to work well, but iso-propyl alcohol seems to lower repellency time.

A number of companies are marketing a repellent of this type under license from Chemical Foundation, Inc. Among them are:

Unexcelled Mfg. Co., Inc., 11 Park Place, New York 7, N. Y. ("UNXLD 448").

Kelton Cosmetic Co., 230 West 17th St., New York 11, N. Y. (bulk).

Peau d'Or Sales Corp., 601 N.E. 13th St., Miami 36, Fla.

Graves-Edgemon Co., 1536 Union Trust Bldg., Cincinnati 2, Ohio. (TAZ-ZAT).

Norway Chemical Co., 8 Deering St., Norway, Maine.

Chandler Chemical Co., 37 West 57th St., New York, N. Y. (D-TER).

United Cigar-Whelan Stores, 215 Fourth Ave., New York 3, N. Y. (DISPELLENT).

Lester Laboratories, P. O. Box 4897, Atlanta, Ga.

West Disinfecting Co., 42-16 West St., Long Island City, N. Y.

The Chemical Foundation points out a number of other interesting observations they have made regarding "448." They claim that, used as a contact spray, it exhibits insecticidal properties, although no data has been offered to confirm such claim.

Information published by Chemical Foundation, Inc. from data furnished by West Disinfecting Co. sheds some light on the possible use of "448" as a fly spray ingredient. The following standard Peet-Grady tests on two "Deobase" sprays, one containing but 1% of "448" while the other contains 25% "448," give some indication of possible concentrations in such sprays.*

	1% "448"	25% "448"
Total number of flies used	925	1086
Average % down, 10 minutes	33.9%	96.1%
Grade designation ..	no	AA
O.T.I. difference...—30.6		+26.6
Actual kill of O.T.I.	47.2%	50.5%
Total kill of sample tested	16.6%	77.1%
Knockdown of O.T.I., 10 minutes	93.4%	96.0%

* Testing done by Entomological Testing Labs., Inc., New York.

Another party, interested in marketing a competitive product has tested 1% and 5% concentrations of "448" in an insecticide base oil (a 350° to 500° F. cut of deodorized, refined kerosene) and claims that it was not particularly effective as a contact spray. Other ways of marketing "448" are being investigated by the trade, such as 40% "448" in a cream base and 80% "448" in a lotion. A stearate base has been mentioned, however there is a limitation as to the amount of the repellent that can be incorporated into a cream or emulsion base without its separating after a time. The Chemical Foundation also reports that "448" in an emulsion base is being tested as an animal spray.

The chemicals used in "448" in a 30/70 ratio mixture of 2-cyclohexyl-cyclohexanol and 2-phenyl-cyclohexanol respectively are marketed by the Dow Chemical Co., Midland, Mich., in less than carload lots (55 gallon drums) at about 70c per pound.

Pioneered by Navy researchers, "448" now released to the trade, is being developed commercially

MOSQUITO LARVICIDE TESTS

A RESUME OF TESTS OF COMPOUNDS RELATED TO DDT AGAINST LARVAE OF ANOPHELES QUADRIMACULATUS

THE effectiveness of DDT against larvae of the common malaria mosquito (*Anopheles quadrimaculatus* Say) has been reported (Deonier *et al.* 1945). During the last 2½ years many compounds† chemically related to DDT have also been tested against anopheline larvae. Some of these, such as the isomers and bromine analogs, bear a close structural relation to DDT; others are related to DDT only in certain portions of their structure. Certain of the compounds are of interest because of their presence in technical DDT (Haller *et al.* 1945). The high toxicity of TDE (1, 1-dichloro-2-, 2 - bis (p - chlorophenyl) ethane) to anopheline larvae has recently been reported (Deonier and Jones 1946).

Lauger *et al.* (1944) have reported on the insecticidal effectiveness of a large number of compounds related to DDT. Tests of DDT analogs have also been reported by Martin *et al.* (1943), Siegler and Gertler (1944), and Prill *et al.* (1945). The last group of investigators have reported on tests of a few DDT analogs against mosquito larvae.

Experimental Procedure

The general procedure for application on a parts-per-million basis (Bushland and King 1943) was followed. The materials were tested in acetone-water suspensions. Tests were made in 400-ml. beakers containing 250 ml. of distilled water. Approximately 25 ml. of the water from each beaker was poured off into a 50-ml. beaker. The test larvae were counted into this small beaker, which was used to transfer the larvae to the larger beaker. A suspension was made by adding the required amount of acetone solution containing the desired quantity of test material to the water remaining in the 400-ml. beaker (approximately 225 ml.). The larvae were then added.

Early fourth-instar larvae of *Anopheles quadrimaculatus* were used. They were removed from the breeding media by means of a small wire loop covered with gauze, and placed in a crystallizing dish containing distilled water. Twenty larvae were selected at random and transferred to the 50-ml. beakers. Readings were made after 24- and 48-hour intervals. All larvae were forced to submerge. Larvae that were able to come to the surface were classed as alive and those unable to do so were considered dead.

The few compounds that were insoluble in either acetone or water were tested as suspensions, the material being ground as fine as possible with a small amount of "Triton X-100" (polyethyleneglycol alkyl aryl ether).

The initial tests with the various compounds were made at a dosage of 10 p.p.m. A compound that did not give over 50 per cent mortality in 48 hours in these screening tests was considered nontoxic and was not tested further. Compounds giving over 50 per cent mortality in 48 hours at 10 p.p.m. were tested successively at 1.0, 0.1, 0.05, 0.025, 0.01, 0.005, and 0.0025 p.p.m. At least one test (20 larvae) was made at each concentration.

As previously reported (Deonier and Jones 1946), *p,p'*-DDT (1-trichloro-2-2-bis (*p*-chlorophenyl)ethane and *p,p'*-TDE (1,1-dichloro - 2, 2-bis (*p*-chlorophenyl) ethane) are about equally effective against anopheline larvae. It is interesting to note that *o,p'*-DDT (1-trichloro-2- (*p*-chlorophenyl) - 2- (o-chlorophenyl) ethane), the principal impurity in technical DDT, and *o,p'*-TDE (1-dichloro-2- (*p*-chlorophenyl)-2- (o-chlorophenyl)ethane), although less toxic than the corresponding *p,p'*-isomers, are of approximately the same toxicity.

In general, compounds highly toxic to anopheline larvae are closely related analogs of DDT. However, some closely related compounds are of a low order of toxicity—for example, 1,1-dichloro-2, 2-bis (*p* - chlorophenyl) ethylene and 1-tribromo-2, 2-bis (*p*-bromophenyl)ethane.

Of the compounds tested, all those toxic to anopheline larvae at 0.025 p.p.m. or less have either a $=CH.CCl_3$ or a $=CH.CHCl_2$ group. Compounds with the $=CH.CH_2$ Cl group (1-chloro-2, 2 - bis (*p*-chlorophenyl)ethane) and $=CCl.CCl_3$ group (1, 1, 1, 2-tetrachloro-2, 2-bis-*p*-chlorophenyl)ethane), or those in which bromine replaces the chlorine of the trichloro- or dichloroethyl groups, are much lower in effectiveness. Some compounds without halogen on the benzene ring have a rather high degree of larvicidal effectiveness—for example, 1-trichloro-2, 2-bis (*p*-methoxyphenyl)ethane and 1-trichloro-2, 2-di-*p*-tolylethane. However, 1-trichloro-2, 2-diphenylethane, with no substituents on the benzene ring, is of a low order of toxicity.

Results

The accompanying tabulation in Table II (See Page 139) shows the lowest concentration at which the compounds were toxic to fourth instars of *Anopheles quadrimaculatus*. The compounds have been arranged in sev-

*This work was conducted under a transfer of funds, recommended by the Committee on Medical Research, from the Office of Scientific Research and Development to the Bureau of Entomology and Plant Quarantine. Mr. Jones is now with the Unit of Entomological Research of Dodge & Olcott, Inc., Baltimore, Md. Co-author Harry H. Incho is a Sergeant, AUS, assigned from Army Air Forces Committee of Aerial Dispersal of Insecticides, located at Army Air Forces Center, Orlando, Fla.

†Most of the compounds listed in this paper were prepared by the Division of Insecticide Investigations of the Bureau of Entomology and Plant Quarantine; others were obtained from commercial producers.

By Christian C. Deonier, Howard A. Jones, H. L. Haller, Edna Hinchey and Harry H. Incho*

Bureau of Entomology and Plant Quarantine, U.S.D.A.

eral groups, according to their chemical structure. The ethanes and ethylenes in the first part of group I bear the closest structural relation to DDT.

Table 1 gives more detailed results of additional tests at lower concentrations of those compounds that were toxic at 0.1 p.p.m. Different lots of larvae vary in their resistance to the toxic action of materials, and hence not all results may be entirely comparable. The results shown, however, are believed to place the compounds in their correct relative order of toxicity. Tests of pure DDT (recrystallized twice from ethyl alcohol) made simultaneously with tests of some of these compounds are also given. At least one test (20 larvae) was made at each concentration.

Such brief generalizations as these leave many results unexplained, namely, the low toxicity of 1-trichloro-2, 2-bis (*p*-tert-butylphenyl)ethane as compared with 1-trichloro-2, 2-di-*p*-tolylethane, and of 1-trichloro-2,2-bis (5-chloro-2-hydroxyphenyl)ethane as compared with 1-trichloro-2,2-bis (3,5-dichloro-2-hydroxyphenyl)ethane. Results such as these may be due largely to differences in physical properties of the compounds.

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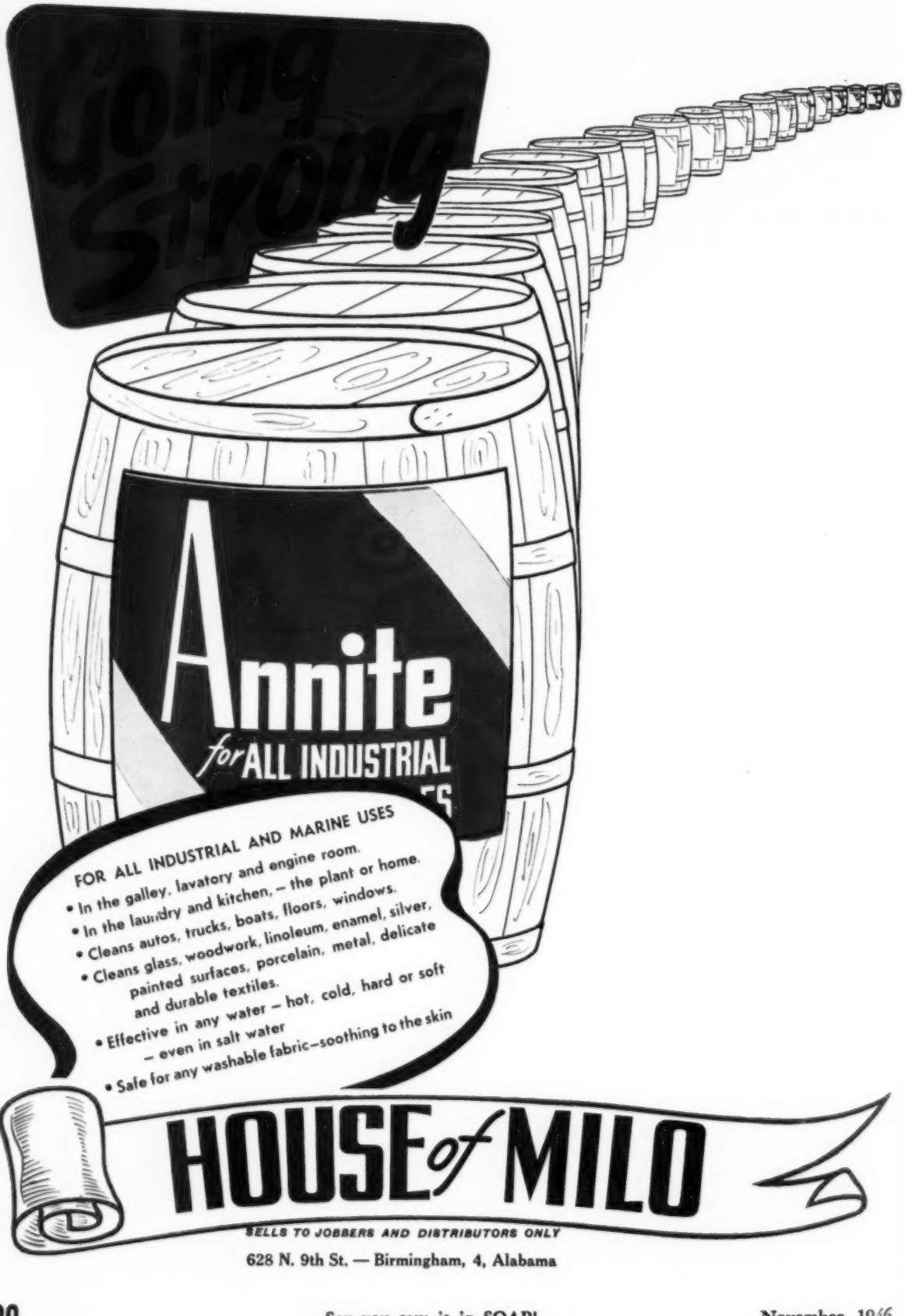
Lauger, P., H. Martin, and P. Muller.

(*Turn to Page* 139)

TABLE 1

Toxicity to Fourth Instars of *Anopheles Quadrimaculatus* of Compounds Related to DDT, and of Pure DDT, at Dosages of 0.1 p.p.m. or Less.

Compound	*Dosage in p.p.m.*	*Per Cent Mortality*			
		Compound		*Pure DDT*	
		24 Hours	*48 Hours*	*24 Hours*	*48 Hours*
1-Trichloro-2-(*p*-chlorophenyl)-2-(*o*-chlorophenyl) ethane	0.1	100	...	...	...
	.05	100	...	...	...
	.025	100	...	...	...
	.01	35	45	100	...
1-Trichloro-2-(*p*-chlorophenyl)-2-(*m*-chlorophenyl) ethane	.1	100	...	...	...
	.05	100	...	...	...
	.02	73	98	...	...
	.01	30	77	...	...
	.005	20	55	...	...
	.0025	5	22	55	80
1-Trichloro-2-phenyl-2-(*p*-chlorophenyl) ethane	.1	95	95	...	...
	.05	100	...	...	...
	.025	60	95	...	...
	.01	15	85	...	...
	.005	10	10	...	..
1,1-Dichloro-2,2-bis (*p*-chlorophenyl) ethane	.1	100	...	...	...
	.05	100	...	...	...
	0.25	100	...	...	...
	.01	100	...	100	...
	.005	88	100	83	97
	.0025	58	95	55	82
1-Chloro-2,2-bis (*p*-chlorophenyl) ethane	.1	55	100	...	...
	.05	5	40	...	...
1,1-Dichloro-2-(*p*-chlorophenyl)-2-(*o*-chlorophenyl) ethane	.1	100	...	...	...
	.05	95	100	...	...
	.025	60	85	...	...
	.01	20	20	...	...
1,1,1,2-Tetrachloro-2,2-bis (*p*-chlorophenyl) ethane	.1	40	95	...	...
	.05	0	20	...	...
1-Trichloro-2,2-bis (*p*-bromophenyl) ethane	.1	100	...	...	...
	.05	100	...	...	...
	.025	100	...	...	...
	.01	95	100	...	...
	.005	95	100	77	93
	.0025	60	95	22	80
1-Tribromo-2,2-bis (*p*-chlorophenyl) ethane	.1	45	100	...	...
	.05	5	60	...	...
	.025	0	10	...	...
1-Trichloro-2,2-bis (*p*-fluorophenyl) ethane	.1	100	...	...	...
	.05	100	...	...	...
	.025	100	...	...	...
	.01	85	85	...	...
	.005	5	10	60	95
1-Trichloro-2,2-bis (3,5-dichloro-2-hydroxyphenyl-ethane	.1	100	...	...	...
	.05	100	...	...	...
	.025	100	...	...	...
	.01	85	85	...	...
	.005	5	10	60	95
1-Trichloro-2,2-bis (*p*-methoxyphenyl) ethane	.1	75	90	...	...
	.05	100	...	...	...
	.025	55	95	...	...
	.01	50	100	...	...
	.005	5	20	77	93
1-Trichloro-2,2-di-*p*-tolylethane	.1	100	...	...	...
	.05	100	...	...	...
	.025	55	95	...	...
	.01	50	100	...	...
	.005	5	20	77	93
p,p'-Dichlorodiphenyl sulfide	.1	70	70	...	...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DDT for Control of Roaches

By L. S. Henderson

Bureau of Entomology and Plant Quarantine
U.S.D.A.

WHEN DDT first began to receive attention as an insecticide, there were reports that it might be satisfactory for the control of the American roach but that it was not effective against the German roach, which is often called the water bug or croton bug. This statement has been passed along and repeated until at the present time there are many who believe that DDT is not effective against the German roach.

In early laboratory investigations DDT showed definite promise of being effective against all species of roaches that are troublesome in homes. Tests were subsequently conducted under practical conditions in several large institutions where there were extensive and heavy infestations of the German roach and where circumstances made control a difficult matter. Effective control was obtained with either a 10-percent DDT powder or a 5-percent solution of DDT in refined kerosene. In no case was there a failure. The armed forces have also found both these preparations satisfactory for the control of roaches in ship galleys, mess halls, barracks, hospitals, and other military installations.

The Research Committee of the National Pest Control Association, in cooperation with the Bureau of Entomology and Plant Quarantine, supervised extensive experiments with the 10-percent DDT dust and the 5-percent DDT solution for the control of all species of roaches infesting homes. These materials were used by a large number of pest-control operators in many cities in different sections of the country. All the operators were given the same instructions for the use of the insecticide under practical conditions just as it might be used in normal service work. The operators made reports of the treatments and of the results on standard forms.

In a very few cases unsatisfactory results were reported. In a number of cases exceptionally good results were obtained. Most of the reports told of results somewhere between these two extremes. The general conclusion was that, on the basis of a single application, the DDT powder or solution would be at least as effective as other insecticides, including sodium fluoride and pyrethrum. When the DDT powder was applied periodically, as is common practice in roach-control work, it was superior to other materials. When the 5-percent DDT solution was used periodically in damp or moist areas, it was superior to sodium fluoride or pyrethrum for the control of both German and American roaches.

Individuals sometimes write that they have used several different sprays and roach powders, including sodium fluoride and pyrethrum, in the home and have not been able to control roaches. This often indicates an unsatisfactory method of application rather than a fault of the insecticide used. In such cases where common roach insecticides have failed, it is not likely that DDT would give satisfactory results, for DDT, like any other good insecticide, must be applied in the right places and in the correct manner in order to be effective.

How DDT Affects Roaches

DDT affects the nervous system of the roach. The DDT is absorbed through the feet or the body wall as the insect walks over the residue or gets spray or powder onto the body. When the DDT begins to take effect, the insects become restless or excited, leave their hiding places, and wander about for a time over the walls and ceiling. In some cases this might be objectionable because the roaches may be temporarily scattered all over the premises. This behavior, however, is evidence that the insects are being affected by DDT and that they will eventually die. After the initial period of excitement the roaches begin to have tremors and violent convulsions, and will be observed to shake and jump about. The next effect is the uncoordinated movement of the legs and later of the whole body. Finally the roach kicks over on its back, continuing to move its legs, but gradually becoming weaker until death occurs.

When a proper application of DDT has been made, an infestation may be pretty well cleaned out in 24 to 48 hours. If there are many roaches in spots that have not been reached by the treatment, eradication will take longer. Sometimes a week or more may elapse before the infestation is eliminated.

DDT is not quick-acting against roaches, and death may not occur for several days after contact with a DDT dust film or spray residue. In laboratory experiments with tiny amounts of DDT, all the roaches were on their backs and incapable of walking after 24 to 48 hours, but they did not die until 5 to 7 days after the original contact with DDT.

Although DDT does not cause rapid knock-down or immediate kill, with proper application it can be highly effective and give long-lasting results. It is not necessary to treat every few days, as is the case with some insecticides. Make one good application and then let it work. The existing infestation will be eliminated and roaches that appear after the premises have been treated will be killed when they encounter the dust or spray deposit. An occasional dead roach will be evidence of this action. Roaches will not hide or develop in treated areas. A single treatment will usually be effective for several months.

Subsequent treatments are necessary only when roaches reappear. Small areas where the DDT deposit is destroyed by excessive moisture, frequent cleaning, or other causes, may be given occasional spot treatments when it is not necessary to make a general application of insecticide.

Application

IN using DDT for roach control one should not expect immediate kill by direct contact alone. To get the best results from DDT, advantage should be taken of its long-lasting, or residual, property. The habits of the roaches should be borne in mind and the insecticide placed where the roaches hide or where they will walk through it when they come out at night in search of food and water.

Dust—A powder should be used which contains 10 per cent of DDT in an inert carrier such as pyrophyllite or talc. The powder can best be applied with a small hand duster of the bellows, bulb, or plunger type.

Many persons attempt to control roaches by placing a heavy band of powder on the floor around the edges of the room. The powder is left overnight or for a day or two and then swept up. Although this method may kill some roaches, it does not constitute an adequate treatment because it does not reach the insects in their hiding places. Many roaches may be able to go from their hiding places to sources of food and water without crossing the band of powder. Then, too, some powder preparations may be repellent to roaches and they will tend to avoid the band of dust.

For a temporary treatment with DDT the powder should be applied with a duster and distributed in a thin film over the floor, around the sink, over the top of work tables, or in other places where roaches will walk. If an apartment or house is to be vacant, over a week-end or during a vacation period, the dust can be applied at the beginning of the period and cleaned up when the occupants return.

Instead of such a temporary treatment it is better to make an application that will be of more lasting value by taking advantage of the residual property of DDT. The nozzle of the duster should be used to blow the powder into cracks and crevices; behind and underneath the splashboard and drainboard of the sink; in cupboard spaces, especially in the upper corners; behind drawers and around drawer spaces; around water pipes where they run along the wall or go through the wall; inside the compartment of mechanical refrigerators which contains the motor and compressor; behind and underneath objects; behind baseboards or moldings; in cracks between the wall and window or door frames; on the under side of tables or benches; and in any other hiding places, or where the roaches will run through the powder. It is not necessary to use large amounts of powder. A light uniform film will be sufficient. If large numbers of roaches are present and the infestation is distributed all over the room rather than in isolated areas, it may be desirable to add the general dusting described in the previous paragraph. The next day the powder in exposed places can be cleaned up and that in secluded or concealed spots left to continue its action. Such a general treatment will probably not be necessary after the first application. Subsequent treatments will usually be required only in those places where the dust deposit has been destroyed by cleaning or excessive moisture, or where roaches make their appearance again.

Solution—A 5 per cent solution of DDT in deodorized kerosene can be used to obtain a residue in exposed places where the white powder would be unsightly and objectionable. The solution will also leave an effective residue on vertical surfaces, such as walls or the sides of cupboards or cabinets, and on the under side of shelves, tables, drawers, etc., to which a dust deposit would not adhere very well. The residue from the solution is not usually visible, and it is not so easily removed by cleaning and is less affected by moisture than the dust deposit.

The solution can be applied lightly with a brush, but is more readily put on with a sprayer. The spray should not be so fine that a large amount of it floats off into space. The amount applied should be sufficient to moisten the surface thoroughly, but not enough to allow the liquid to stand up in droplets or run off. When the solution is used, rather complete coverage is required to give satisfactory control.

Combination spray and dust treatment—The combined use of a 5 per cent DDT solution and a 10 per cent DDT dust will often give more satisfactory results than can be obtained with either form alone. Each preparation should be applied in the places where it is most suitable. The spray can be put on under surfaces, on vertical surfaces, and in exposed places, and the dust can be blown into cracks and crevices, or underneath and behind objects where it would be difficult or impossible to apply a spray. The two forms should not be put on so that they interfere with each other. That is, the dust should not be blown onto a surface that is still wet with spray liquid, and the solution should not be sprayed onto a dust deposit, lest the latter become hardened or caked. When that happens, the dust deposit is not so effective as when it is in a loose, powdery condition.

Emulsion—DDT emulsions have also given good roach control. An emulsion may be used where it is desirable to avoid the fire hazard or the temporary oily film of the kerosene solution. An emulsion is formed by diluting with water a specially prepared concentrated solution of DDT and an emulsifier. These concentrates usually contain 20 to 35 per cent of DDT. To prepare a 5 per cent DDT emulsion from a 25- per cent concentrate, use 1 part with 4 parts of water. For a 2.5 per cent emulsion, use 1 part of concentrate to 9 parts of water. Starting with a 20 per cent DDT concentrate, use 1 part with 3 parts of water for a 5 per cent emulsion or with 7 parts of water for a 2.5 per cent emulsion. The emulsion should be applied to the same places and in the same manner as an oil solution.

Suspension—It has often been observed that a suspension of DDT in water applied in a barn for fly control is also effective against roaches. In

some cases a concentration of only 1 or 2 per cent of DDT has given satisfactory control. The suspension leaves a visible white deposit, objectionable in some places, but in basements or some other locations it would be of no consequence. A suspension can be applied in damp areas where a powder treatment would be adversely affected by moisture. A suspension is more effective than a solution on porous or absorbent surfaces, such as unpainted wood, plaster, or concrete. It also has the advantage over a solution of having a water base, which gives freedom from fire hazard, oily film, odor, and injury to the skin.

A suspension is prepared from a wettable DDT powder. This is a specially prepared material in which other ingredients are added to DDT so that it can be mixed with water. A satisfactory powder for this purpose is one containing 50 per cent of DDT. A 1 per cent DDT suspension is made by mixing 2.7 ounces (about 12 tablespoonfuls or ¾ cupful) of a 50 per cent powder with 1 gallon of water. For larger quantities use 1 pound of 50 per cent powder to each 6 gallons of water. A 2 or 2.5 per cent suspension should contain correspondingly larger amounts of powder. It is difficult to handle suspensions containing more than 2.5 per cent of DDT.

Since the solid material in a suspension has a tendency to settle slowly, the sprayer should be shaken frequently to insure a uniform distribution of insecticide and prevent the particles from accumulating in the bottom of the sprayer or clogging the nozzle. A suspension may not be handled satisfactorily by some kinds of sprayers.

Household sprays containing some DDT — Many household sprays contain 0.5 to 3 per cent of DDT, together with some other toxic ingredient. Such a spray may be excellent for direct contact action, but the insects must be hit with the spray liquid if it is to be fully effective. This type of spray should not be depended upon for a long-lasting residual action. For residual action five applications of a 1 per cent DDT spray are not so effective as one application of a 5 per cent solution.

Aerosols — Most gas-propelled aerosols from the so-called aerosol "bombs" now available commercially contain small amounts of DDT and pyrethrum as the insecticidal materials. These are designed primarily as a means of distributing insecticides into the air of a room and for uses similar to space sprays.

When used in large amounts and directed into hiding places, these aerosols are helpful in roach control. The amount of aerosol used must be many times greater than that necessary to kill flying insects. These high dosages may be irritating to humans and are not considered desirable if people or pets remain in the room.

By using high dosages of aerosol, large numbers of roaches may be killed quickly and easily. Aerosols, however, have limited penetrating properties. Small amounts of aerosol may reach roaches in partially protected places and disturb them so that they come into the open, where they will be exposed to enough insecticide to kill them. Some may move away, even into adjoining rooms. Still others in more protected places may not be reached by enough aerosol to disturb them at all.

An aerosol application leaves little or no lasting effect and repeated heavy applications are required to get satisfactory control. A single application of DDT as a residual spray or dust will give better results, especially when the infestation is well established, or where the premises are subpect to constant reinfestation.

Treatments

German roach — Most of the previous discussion with regard to application has been made with reference to the German roach, which is the species most frequently found in houses, restaurants, stores, and institutions of various kinds. The German roach usually lives and develops in the immediate area where it is troublesome, and the control measures discussed will be effective in eliminating them. In the home this species is usually found in the kitchen, and sometimes in the bathroom.

American roach — This species will often be found developing in large numbers in a warm damp basement or storeroom. From there they may spread, usually to the first floor of the building. Control measures applied where occasional roaches are found will kill those individuals, but will not eliminate the trouble and other roaches will continue to come in. The insecticide should be applied at the source of the infestation. This may often be in a damp place, where a powder would absorb moisture from the air and become hardened or glazed over the surface. When this happens it is less effective than when it is in a dry, dusty condition so that the insects get it onto their bodies when they walk through it. In such areas it will be better to use a solution, emulsion, or suspension, rather than a dust. Where the white deposit of the suspension will not be objectionable, this may be the best form to use.

Oriental roach—This species is even more limited to damp areas than is the American roach, and the same methods of control can be applied.

Brown-banded roach — This species, sometimes called the tropical roach, is becoming increasingly prevalent in the United States. In the home it may be found scattered all over the entire house. It lives in high places in the room more often than does the German roach, which it somewhat resembles in size and appearance. Small groups may appear in the upper parts of cupboards, on shelves in closets, or on book shelves. It will also be found in desks, sewingmachine cabinets, radio cabinets, magazine racks, and upholstered furniture, or on the under side of tables and chairs. Egg capsules will be stuck to surfaces, usually in protected places near where the insects are hiding.

This roach is often the most difficult species to control, because of its habit of living all over the house. The hiding places should be carefully sought out and treated as directed in the section discussing the combination spray and dust treatment. If this treatment is applied extensively and thoroughly to hiding places and to surfaces where the roaches will crawl over the residue, satisfactory control or complete

(*Turn to Page* 143)

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TESTING THE QUATERNARY AMMONIUMS

. . . a review of the methods currently in use for the estimation of high molecular quaternary ammonium compounds

By Adrien S. DuBois*
Onyx Oil and Chemical Co

THE increasingly widespread adoption of the surface active cationic germicides in various branches of public health and medical practice has focussed attention on the need for both practical (field tests) and accurate (laboratory tests) methods of estimating these compounds. This necessity is further stressed by the promulgation of federal and state laws which require manufacturers to give specific information on the active ingredients present in commercial preparations. This, of course, implies that these statements can be controlled by suitable analytical procedures. This paper is devoted to a review of the literature on the estimation of high molecular quaternary ammonium compounds. Other chemicals, which also belong to the broad class of surface active cationic germicides, such as high molecular amines, sulfonium and phosphonium compounds, will not be considered here. The information collected from the literature will be supplemented by data, not heretofore published, which we have obtained with some of the methods discussed.

Estimation of the Cations

ALL the methods which have been proposed for the estimation of high molecular quaternary ammonium ions are based on the interaction between the high molecular cation and various anions to form salts or complexes. The particular procedure recommended in each instance is dependent upon the properties of this new salt, such as solubility in water and organic solvents, color, etc. These features will be discussed under the respective methods, which are all volumetric.

Bromphenol Blue Methods

THE high molecular quaternary ammonium ions displace the color of sulphonphthalein indicators to the alkaline side, and also change it qualitatively (10). Even low concentrations (less than 10^{-5} N) of the cations change the normal alkaline purple of bromphenol blue to a pure blue, by displacing or eliminating transmission in the red end of the spectrum (11).

Besides the above phenomenon, bromphenol blue and other indicator dyes, e.g. bromthymol blue, react with high molecular quaternary ammonium ions to form colored salts which are readily extracted from alkaline (1) or acid solutions (5) by a number of organic solvents, e.g. ethylene dichloride (1,5), benzene (2), etc. In the case of bromphenol blue, one gram-molecule of dye reacts with 2 gram-molecules of the cation (1).

Hartley-Runnicles Method

HARTLEY and Runnicles (11), in collaboration with N. K. Adam, were the first to develop a procedure for the estimation of surface active cationic compounds. It depends on the qualitative alteration of the color of bromphenol blue from purple to pure blue by the cations. This color change is used as the end-point for the direct titration of surface active anions against surface active cations, which form insoluble salts. Removal of the surface active cation in this manner, restores the alkaline purple color. The accuracy of the titration varies with the nature of the surface active ion. For instance, N/1000 cetyl pyridinium or trimethylammonium ions can be titrated with N/1000 cetyl sulfate, or cetane sulfonate, to within 1 per cent. At lower concentrations, the accuracy is somewhat less. (11).

The soaps give very indefinite and non-stoichiometric end-points (11). Other surface active anionic compounds have been found suitable (17), e.g. sodium di-n-octyl sulfosuccinate (Aerosol OT), sodium salt of isopropyl naphthalene sulfonic acid (NSAE), sodium dodecyl sulfate (Duponol PC), etc. When commercial products are used, it is, of course, necessary to cali-

*Presented before the Committee on Standardization of Chemical Analysis, Disinfectant Section, of the NAIDM, June, 1946. The author is now connected with Fuld Bros., Baltimore, Md.

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TABLE I
Estimation of high-molecular quaternary ammonium cations by the method of Hartley and Runnicles.

Germicide	*Concentration*	*ml. 1:2500 Duponol PC*
Alkyl dimethyl benzyl ammonium chlorides.....	1:1000	4.01
	1:2000	2.00
	1:3000	1.53
	1:4000	1.13
	1:5000	0.93
	1:7500	0.68
	1:10000	0.44
	1:20000	0.23
9-Octadecenyl dimethyl ethyl ammonium bromide..	1:1000	4.77
	1:2000	2.25
	1:3000	1.45
	1:4000	1.11
	1:5000	1.01
	1:7500	0.62
	1:10000	0.49
	1:20000	0.21

The values are the average of 5 determinations.

brate the solutions against known amounts of high molecular quaternary ammonium ions. The titrations are not seriously affected by the presence of electrolytes up to a concentration of N/2. Above this point however, there is a distinct lag in the restoration of the purple color and the end-point becomes less sharp (11).

We have found the following procedure to be very satisfactory, and have used it to obtain the data presented in Table I. It consists of adding, from a microburette, a 1:2500 solution of sodium dodecyl sulfate ("Duponol PC") to 2 ml. of the solution of high molecular quaternary ammonium compound, containing 0.1 ml. of a 0.01% solution of bromphenol blue, made slightly alkaline with ammonia. At the end-point, the color changes from pure blue to purple, and is best observed under artificial lighting.

The average deviation observed was never greater than 0.04 ml., thus indicating easy reproducibility of the results. Besides the compounds mentioned in Table I, the following were successfully assayed by this method: cetyl pyridinium bromide, lauryl pyridinium chloride, cetyl trimethyl ammonium bromide, alkyl dimethyl 3.4-dichlorobenzyl chloride, p-tert. octyl phenoxyethyl ethoxy dimethyl benzyl ammonia chloride, etc.

The procedure which we have used differed somewhat from that proposed by Hartley and Runnicle. For the laboratory, the original method would probably yield more accurate results, while for field work, the modification which we have used would be more suitable. In our experience, we have found this procedure to be the simplest and to have the widest range of application of all the methods investigated.

We have found this method to be applicable to the estimation of surface active cations in the presence of alcohol-acetone mixtures, e.g. in tinctures, as well as in the presence of organic matter, such as, milk, beer, etc. To be sure, organic matter does influence the titrations in a complex fashion. This can be seen from the data presented in Table II, which were obtained in a milk environment.

The reason for the discrepancy between the values in the presence of 10% and 100% milk is probably due to the effect of the whiteness of the milk in masking the blue color change used as an end-point. The above data also indicates that it is impossible to determine the amount of high molecular quaternary ammonium compounds which is inactivated by organic matter, using this procedure. This is true, however, of all the other methods proposed. Similar results have been obtained in the presence of serum, beer, etc.

Auerbach Method

THIS colorimetric method (1) is based upon the formation of colored salts, from high molecular quaternary ammonium ions and bromphenol blue, which are readily extracted from alkaline aqueous solutions by a number of organic solvents. Under these conditions, bromphenol blue does not form extractable salts with primary, secondary and tertiary amines or with alkaloids (1).

The procedure consists of adding 1 ml. of 0.04% bromphenol blue solution and 2 ml. of 10% sodium carbonate solution to 2 ml. of a solution containing about 0.2 mg. of the quaternary salt, and diluting with about 50 ml. distilled water in a 125-ml. glass-stoppered Erlenmeyer flask. After adding exactly 10 ml. of ethylene dichloride, the flask is shaken gently for 1 minute. When the layers have separated, the aqueous layer is aspirated, and the colored ethylene dichloride layer transferred to a dry test tube to which 0.5-1.0 g. dry sodium sulfate is added, and mixed. The clarified colored solution is decanted into a Klett-Summerson photoelectric colorimeter tube and read in the instrument, using filter No. 54. By means of a factor previously derived from a standard solution, the concentration of the quaternary ammonium salt in the sample is calculated. It appears that a linear relationship holds within the range of

TABLE II
Estimation of high-molecular quaternary ammonium cations in the presence of milk, by the method of Hartley and Runnicles.

Germicide	*Concentration*	*ml. 1:2500 Duponol PC alone*	*10% milk*	*20% milk*	*40% milk*	*100% milk*
Alkyl dimethyl benzyl ammonium chlorides	1:2000	2.01	1.94	1.84	1.48	1.81
	1:3000	1.53	1.05	0.94	0.78	1.21
	1:5000	0.93	0.77	0.69	0.50	0.77
9-Octadecenyl dimethyl ethyl ammonium bromide..	1:2000	2.25	2.18	1.98	1.87	2.14
	1:3000	1.45	1.38	1.25	1.05	1.34
	1:5000	1.01	0.89	0.76	0.60	0.74

The values are the average of 3 determinations.

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0.05 to 0.50 mg. of high molecular quaternary ammonium salt.

We have been unable to secure reproducible results by this method, possibly due to the same difficulties in drying the ethylene dichloride without affecting the color intensity, which led Auerbach (2) to change the solvent to benzene. Due to the lower solvent power of benzene, the method was further changed so that the sample contained only 10 micrograms and the light filter was changed to one transmitting at about 600 $m\mu$ (No. 60). Fresh indicator solutions should be used, and the indicator is made slightly alkaline with sodium hydroxide. The limit of error of the method is about ±2 per cent, with occasional errors of ±5 per cent (2). We have not investigated this modified procedure. A recent publication (12) claims to have used this method successfully.

A method using the same principle as that of Auerbach was proposed earlier by Krog and Marshall (12). It differs from Auerbach's method in that the quaternary ammonium salt is titrated with bromphenol blue until the aqueous layer first assumes a blue color. No colorimeter is used. This method was proposed for field use.

Brooks and Hucker Method

BROOKS and Hucker (5) developed a procedure, similar to that of Krog and Marshall, which involves the extraction of the bromphenol blue salt of the high molecular quaternary ammonium compound with ethylene dichloride, under acid conditions. In this case, the color of the ethylene dichloride layer changes, at the end-point, from blue to greenish yellow.

Upon investigation, we have found the reason for this particular color change. Under acid conditions, bromphenol blue is yellow. When during the titration, there is an excess of the quaternary ammonium compound, the salt formed is blue. However, when there is an excess of the buffered bromphenol blue, the salt is yellow. Both of these are solvent-soluble, although the bromphenol blue itself is not. Since the titration is carried out by adding the bromphenol blue to the quaternary ammonium compound, the original color of the solvent is blue, but when the end-point is reached, the yellow salt is also extracted, and this leads to the greenish yellow color observed at this stage.

This method is much simpler than Auerbach's, and yields easily reproducible results. Furthermore, it lends itself readily to field use. However, it is not as suitable, in the laboratory, as the procedure of Hartley and Runnicles, which is even more simple and which seems to have a wider range of application. It is also subject to interference by organic matter, e.g. milk, serum, which cause the ethylene dichloride to be emulsified, thus obscuring the color change at the end-point.

Briefly, the method consists of titrating 1 ml. of the solution of the quaternary ammonium compound, in the presence of 1 ml. ethylene dichloride, with a 0.04 per cent solution of bromphenol blue buffered to pH 4.5 4.8*. After each addition of the indicator, the tube is shaken. The end-point is reached when the organic layer changes from blue to yellowish green. The end-point is quite sharp. Some of the results which we have obtained with this procedure are presented in Table III.

TABLE III
Estimation of High Molecular Quaternary Ammonium Compounds by the Method of Brooks and Hucker.

Concentration	ml. indicator A	B	C	D	E
1:3000	....	....	1.47	....	....
1:4000	....	0.87	1.25	....	1.20
1:5000	1.22	0.76	1.02	0.98	1.01
1:6000	0.99	0.60	0.77	0.79	0.75
1:7000	0.82	0.47	0.70	0.67	0.70
1:8000	0.74	0.44	0.68	0.58	0.59
1:9000	0.62	0.41	0.60	0.55	0.55
1:10000	0.54	0.39	0.55	0.49	0.49
1:15000	0.40	0.23	0.36	0.31	0.32
1:20000	0.26	0.18	0.29	0.24	0.23

The values are the average of 3 determinations. Average deviation always less than 0.03 ml.
A: alkyl dimethyl benzyl ammonium chlorides (BTC)
B: alkyl dimethyl 3.4-dichlorobenzyl ammonium chlorides (Tetrosan)
C: 9-octadecenyl dimethyl ethyl ammonium bromide (Onyxide)
D: p-tert. octyl phenoxy ethoxyethyl dimethyl benzyl ammonium chloride (Hyamine 1622)
E: Cetyl trimethyl ammonium bromide.

The data given in Table III is presented graphically in Figure I, (See Pg. 131) which illustrates the relationship between the concentration of the high molecular quaternary ammonium compound and the amount of indicator with which it reacts. Similar curves are obtained with the procedure of Hartley and Runnicles. It is clear from those curves that the relationship is not a linear one, as would be expected in any chemical reaction where stoichiometric amounts react with each other. This is not surprising, however, since the end-point with either method is dependent upon the color change of an indicator, the final concentration of which varies with the concentration tested. This introduces a deviation from linear relationship in both methods. It should be remembered, however, that Hartley and Runnicles recommend their method for use at a fixed concentration, viz. 1:2500.

Botwright Method

THE methods which have been mentioned or will be later are not applicable to the estimation of very low concentrations of surface active cations. Botwright (4) modified the procedure of Brooks and Hucker by decreasing the concentration of the indicator and reversing the titration, and thereby obtained a procedure suitable for the estimation of concentrations as low as 2.5 p.p.m.

The test is carried out by titrating 1 ml. of the indicator solution**, in the presence of 1 ml. ethylene dichloride, with the solution of cationic germicide under investigation, shaking between each addition, until the color

*The indicator solution is made up as follows: 0.4 g. bromphenol blue is dissolved in a solution made up of 532.5 ml of citric acid solution (19.2 g. per liter) and 467.5 ml. of disodium phosphate solution (71.6 g. per liter).

**Botwright's indicator consists of 16.5 g. disodium phosphate, 9.8 g. citric acid and 0.04 g. bromphenol blue diluted to 1 liter with water.

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of the ethylene dichloride layer changes from greenish blue to pure blue. Table IV illustrates data which we have obtained by this procedure. The average deviation was never greater than 0.02 ml.

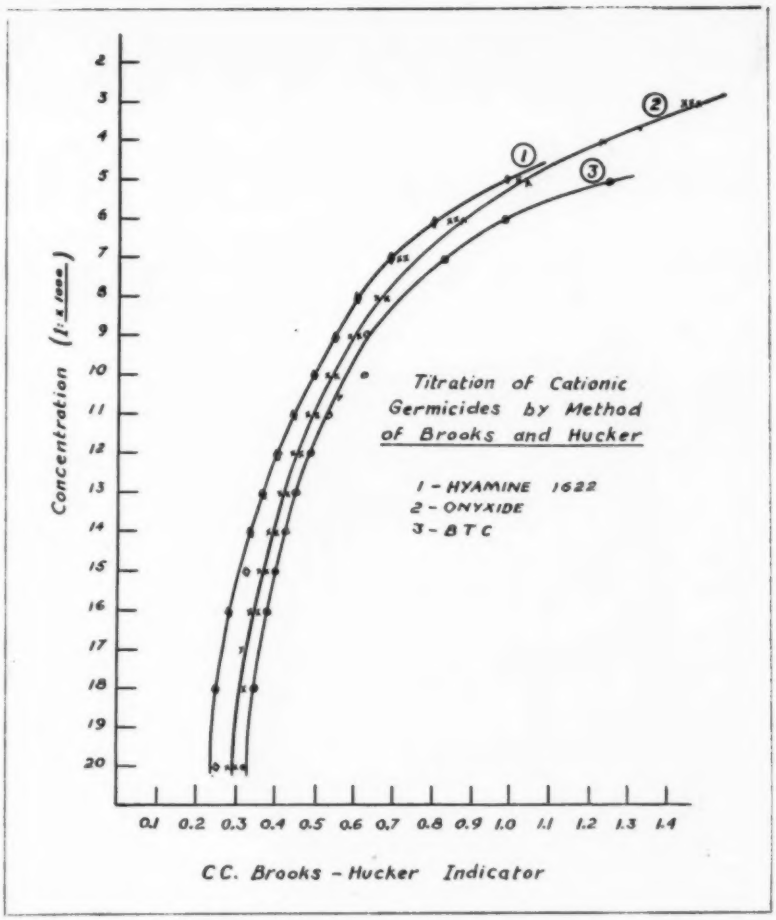
Methods based on dyes

AS mentioned earlier, the sulphonphthalein indicators and anionic surface active compounds form salts with high molecular quaternary ammonium compounds. This phenomenon is a general property of all chemicals which ionize to yield a high molecular anion, such as direct dyes, mineral and organic acids, etc. These salts are usually insoluble, but in the presence of an excess of the high molecular cation, a precipitate may not appear, due to the solubilizing action of the cations. These two properties are combined in the method described below.

Amerse Method

THIS method, which was developed by Botwright (3), relies on the solubilizing of an insoluble salt, and uses the disappearance of turbidity as the endpoint. The test is carried out by gradually adding the solution of surface active cation to 0.5 ml. of the indicator†. There soon appears a turbidity. The addition of the solution is continued until the precipitate just redissolves. Data obtained by this method is given in Table V.

In our experience. we have found that the method is not applicable to any high-molecular quaternary ammonium compound in which the chain-length of the long alkyl, alkenyl or aralkyl radical is below 16 carbon atoms. For instance, we have found the following compounds to yield a turbidity which would not clear up upon addition of even a large excess: alkyl dimethyl benzyl ammonium chlorides, lauryl pyridinium chloride, di-n-octyl methyl ethyl ammonium bromide, tetradecyl dimethyl ethyl ammonium bromide, p-tert. octyl phenoxy ethoxy ethyl dimethyl benzyl ammonium chloride, 9-octadecenyl dimethyl phenoxy ethyl ammonium bromide, etc. It will also be noted that certain exceptions, namely, some compounds containing the 9-octadecenyl radical, do not respond to the test.



Our data indicates that this method may prove of some value. It is the first method to come to our attention which enables a distinction to be made between high-molecular quaternary ammonium cations having different chain-lengths of the alkyl radical. A method believed to be similar to the above, was developed by the Emulsol Corp. (16). No data is available on this procedure.

(Turn to Page 139)

†The "Amerse" indicator is made up of enough Erythrosin B to make the solution N/250.

TABLE IV
Estimation of High Molecular Quaternary Ammonium Compounds by the Method of Botwright.

Concentration	*ml. cationic compound* A	C	D	E
1:50000 (20 p.p.m.)	4.4	3.4	2.1	2.5
1:100000 (10 p.p.m.)	9.2	6.7	4.1	5.4
1:200000 (5 p.p.m.)	18.6	13.9	7.9	10.3
1:300000 (3.3 p.p.m.)	27.9	20.4	11.4	18.1
1:400000 (2.5 p.p.m.)	37.3	27.9	15.4	23.4

The values are the average of 6 determinations.
The compounds are the same as in Table III.

TABLE V
Estimation of High Molecular Quaternary Ammonium Compounds by the Amerse method.

Concentration	*ml. cationic compound* CTAB	Onyxide	Octadecyl dimethyl benzyl ammonium chloride
1:5000	6.1	7.4	6.9
1:7500	8.3	9.4	8.8
1:10000	12.4	14.9	13.8
1:20000	25.0	27.9	26.0

The values are the average of 3 determinations.

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CHIGGER REPELLENTS

by **F. M. Snyder and F. A. Morton**[2]
Bureau of Entomology and Plant Quarantine, U.S.D.A.

ONE of the needs of the armed forces during the recent war was a means of protecting troops against the chiggers (mites) which carry scrub typhus. For this purpose it was desirable to develop a material that is toxic to mites but relatively nontoxic to humans, and that can be applied to uniforms and can withstand considerable exposure to water and laundering.

From studies conducted at the Orlando, Fla., laboratory of the Bureau of Entomology and Plant Quarantine in 1942, Madden *et al.* (1944) found that dimethyl phthalate, when applied as bands around all openings of garments, prevented chigger attachments, and this treatment was recommended for use by the armed forces. Subsequently, Australian workers showed that this material was readily removed from garments by exposure to water, but reported that a related compound, dibutyl phthalate, was also an effective miticide and would withstand more washings than dimethyl phthalate in cool soapy water.

In screening tests in 1944 at Orlando, which were carried on in close cooperation with the U. S. A. Typhus Commission, the Chemical Warfare Service, and other Army agencies, benzyl benzoate showed promise as a miticide and survived washing. The purpose of this paper is to compare these three materials.

From April 1942 to October 1945 the miticidal properties of several thousand chemicals[3] were evaluated in laboratory tests by placing chiggers on small cloths treated with various test materials, and observing the time necessary to paralyze them. The cloth patches were then washed or rinsed in cool tap water and again tested. Since benzyl benzoate had been shown to be a very promising miticide and survived laundering and exposure to water when impregnated in cloth, it was desirable to determine by field tests whether this material was more or less effective than dibutyl phthalate and dimethyl phthalate.

In preliminary field tests two-piece fatigue uniforms of cotton herringbone twill, and also wool socks, were impregnated and washed according to methods that were essentially the same as those described by Snyder and Morton (1946). The clothing was dipped into an emulsion containing 5 percent by weight of toxicant and 2 percent of G.I. soap. It was then put through a hand wringer and the excess liquid was collected. Since the number of square feet in a uniform and a pair of socks was known, the amount of liquid remaining in the uniform could be calculated.

After the uniforms were dried some of them were rinsed for 20 minutes in cool tap water in an electric washer, while others were washed once or three times for the same length of time in 20 gallons of warm soapy water. After each washing they were rinsed twice for 5 minutes in a tubful of cool water. Both treated and untreated uniforms were worn by soldier volunteers from the Orlando Army Air Base and by members of the Orlando laboratory for 1 hour in a highly infested chigger area. The most predominant species was *Acariscus masoni* Ewg., although *Eutrombicula tropica* Ewg. was also present. After the clothes had been worn for an additional 3 to 4 hours, they were removed and the chiggers attached to the wearer were counted.

The results of these preliminary tests (table 1) indicate that, when unwashed and unrinsed, garments impregnated with dibutyl phthalate or benzyl benzoate were about as effective as those impregnated with dimethyl phthalate. However, dimethyl phthalate was less effective than the other

Benzyl Benzoate, Dimethyl Phthalate, and Dibutyl Phthalate for Impregnation of Clothing to Prevent Chigger (Mite) Attachments[1]

[1] This work was conducted under a transfer of funds, recommended by the Committee on Medical Research, from the Office of Scientific Research and Development to the Bureau of Entomology and Plant Quarantine.

[2] The authors acknowledge the advice and assistance given in these studies by E. F. Knipling, in charge, and Howard A. Jones, chemist, of the Orlando, Fla., laboratory.

[3] Some of these compounds were prepared in the Division of Insecticide Investigations of this Bureau; others were obtained from commercial producers.

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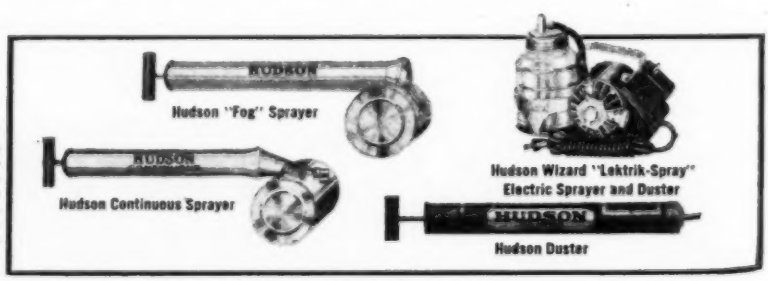

TABLE 1

Protection Against Chiggers Provided by Garments Dipped in Emulsions Containing 5 Per Cent by Weight of Toxicant and 2 Per Cent G.I. Soap and Then Treated by Various Methods.

Treatment after impregnation	Dimethyl phthalate [1]			Dibutyl phthalate			Benzyl benzoate	
	Average number of attachments	Percent reduction [2]	Number of tests	Average number of attachments	Percent reduction [2]	Number of tests	Average number of attachments [2]	Percent reduction
None	1.5	99.9	3	7.3	98.9	5	1.4	99.9
Cool-water leach	11.5	98.5	3	11.3	98.5	5	2.8	99.7
1 washing ..	91.0	86.6	5	17.2	97.7	6	2.5	99.7
3 washings .	173.5	76.0	4	30.2	95.8	6	44.0	93.9

[1] 2 tests.

[2] Figures are based on concurrently tested check (nonimpregnated) garments and were obtained by the following formula:

$$100 - \frac{\text{Number of attachments on treated uniform} \times 100}{\text{number of attachments on check uniform}}$$

TABLE 2

Summary of Field Tests With Impregnated Garments Before and After Washing by Different Methods.

Number and type of washings	Dibutyl phthalate			Benzyl benzoate		
	Number of tests	Average number of attachments	Percent reduction [1]	Number of tests	Average number of attachments	Percent reduction [1]
Electric washer						
0	11	12.1	99.1	13	0.65	99.9
1	9	305.3	84.7	9	0.80	99.9
2	..	....	...	8	0	100
3	..	....	...	8	19.27	97.0
Scrub-brush						
1	2	0	100	2	0	100
2	2	1.5	99.8	2	0	100
3	2	0	100	2	1	99.8
4	5	9.2	97.7	5	21.8	94.5
5	2	16	65.2	2	16.0	65.2
15 minutes boiling soap and water						
1	4	0	100	4	1.5	99.6
2	6	3.1	99.1	6	3.5	98.9
3	6	38.8	87.8	6	1.6	99.5
4	3	74.0	76.8	4	55.0	82.8
5	..	...	...	1	545	0

[1] See footnote 2, table 1.

materials after rinsing in cool water. or after one or three washings in warm soapy water.

Additional tests were run to determine whether benzyl benzoate and dibutyl phthalate were equally effective after various types of washings. Several sets of uniforms were impregnated with the G.I.-soap emulsion, as previously described, and washed (1) in an electric washer, (2) by boiling for 15 minutes and rinsing by hand for 5 minutes, or (3) by scrubbing with soap and then rinsing with water. About 42 liters of water and about 36 grams of soap were used for each wash of a single uniform.

Results of these tests are given in table 2. Benzyl benzoate was as effective as dibutyl phthalate when washed by the scrub-brush method, and superior to it when washed in an electric washer or by boiling. Benzyl benzoate retained its miticidal property after treated garments were given two launderings in the washer, or three scrub-brush washings, or three boiling-water washings (a total of 45 minutes in boiling soapy water). When the two materials were tested concurrently, dibutyl phthalate withstood no machine washings and only two launderings in boiling water (30 minutes), but withstood three scrub-brush washings.

One other test was run in which uniforms were impregnated with benzyl benzoate at the rate of 4 grams per square foot. These uniforms afforded 100 per cent protection after four washings in the electric washer and 95 per cent protection after the fifth.

From these tests it was concluded that benzyl benzoate may be effectively used for impregnating clothing to prevent chigger attachments, and under the conditions of these tests it will withstand at least two washings of any type. Dibutyl phthalate, although effective in some tests, has given more erratic results than benzyl benzoate and appears less desirable for use against mites predominant in Florida.

Literature Cited

Madden, A. H., Lindquist, A. W., and Knipling, E. F. 1944. Tests of repellents against chiggers. Jour. Econ. Ent. 37: 283-286.

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TRADE MARKS GRANTED

(From Page 55)

Serial No. 487,878. Published June 4, 1946. Class 6.

423,773. Liquid chemical preparation for termite repellent and mildew preventive. Filed by Raymond G. Lamoureux, Inglewood, Calif., Nov. 13, 1945. Serial No. 491,485. Published June 18, 1946. Class 6.

423,782. Insecticides. Filed by Lower's Pharmacy, Marion, O., Nov. 16, 1945. Serial No. 491,720. Published June 14, 1946. Class 6.

423,795. Solvents for grease and as a cleaner. Filed by Sea Foam Products Co., Munster, Ind., Dec. 5, 1945. Serial No. 482,700. Published June 4, 1946. Class 6.

423,803. Liquid insecticide. Filed by York Pharmacal Co., St. Louis, Dec. 11, 1945. Serial No. 493,093. Published June 4, 1946. Class 6.

423,817. Exterminator for rats and mice. Filed by Edward J. Lizotte, Liberty, N. Y., Dec. 27, 1945. Serial No. 493,927. Published June 18, 1946. Class 6.

423,839. Insecticide. Filed by Griffith Laboratories, Chicago, Jan. 17, 1946. Serial No. 494,904. Published June 11, 1946. Class 6.

423,845. Insect spray. Filed by Carnegie Chemical Manufacturing Co., Los Angeles, Jan. 21, 1946. Serial No. 495,148. Published June 18, 1946. Class 6.

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ROSIN OUTLOOK

(*From Page 36*)

Manufacturers will probably prefer now to market whatever yellow laundry soap they make in the continental United States rather than in the territories.

The consumption of tall oil should be considered in connection with the consumption of rosin in soap and other products. The only available statistics on tall oil are those on production. We show them below compared with reported production of rosin:

Tall oil production, estimated refined basis on which it would compete with rosin in soap, has increased until it is about 20% of combined gum and wood rosin production. Consumption of tall oil by industries is not reported. Roughly one-third may be going into soap.

Exports of tall oil in 1945 were 9,683 drums. Domestic uses for tall oil other than in soap, as indicated by WFO 136 which allocated tall oil during the third quarter of 1945, comprise tallate driers for protective coatings, mineral flotation agents, core oil, rubber, etc.

Prices

CHART IV shows M gum and wood rosin prices compared with special tallow prices. Gum rosin was classed as an agricultural product exempt from price control at the beginning of the war. Prices began to rise in 1940 and more than tripled before OPA imposed ceilings in September 1944. Ceilings were raised in 1945 and M rosin (gum) was stabilized at about 7.57c lb. Chicago, which compared with a ceiling of about 8.92c lb. Chicago for special tallow. Wood rosin prices were frozen under GMPR and wood rosin sold 2c or more below gum rosin throughout the war. During the OPA holiday special tallow increased in price 3 to 4c lb. while increases in rosin prices were negligible. Both gum and wood rosin were decontrolled August 30th; since that time there has been a moderate increase in gum rosin prices but very little in wood. Tallow remained under control until mid-October. Immediately upon decontrol the spot price increased to 18c lb.

After World War I, without price control, No. 1 tallow prices reached a high of 20c lb. in July 1919; M rosin's peak was 7.78c lb., or only slightly above June 30, 1946 prices.

Special tallow is consistently higher priced than rosin but the spread has varied from year to year.

The spread on October 1 was 0.77c, the lowest since 1932-33, and compares with a 14-year average of 3.10c. After decontrol of tallow, the gap widened to about 10c.

M Rosin at about 8.20c Chicago was high priced compared with 8.97c Chicago for special tallow. It was also high-priced compared with tall oil. Refined tall oil which can be substituted for rosin in soap, sells for $90 ton f.o.b. Savannah or about 5.12c lb. Chicago. But, following the sharp advance in tallow, after decontrol, 8c rosin will look like a cheap raw material to the soap maker.

A comparison of the spread between tallow and rosin prices and consumption of rosin in soap over the past 21 years shows that soap manufacturers do not consistently decrease their use of rosin during periods when the spread narrows nor increase it when the spread widens. The demand for yellow laundry soap, heaviest consumer of rosin in the soap field, is very strong. We believe there is no question as to ready availability of facilities for expanding yellow laundry soap production from present low levels. Production for domestic consumption, mostly civilian, plus exports and shipments, is probably only about one-third of the country's production when manufacturers were working on large Army and Navy Contracts.

Tallow Vs. Rosin Price

April-March	*Premium for Special Tallow over M Gum Rosin*
1932-33	1.09c lb.
1933-34	1.48
1934-35	2.77
1935-36	4.57
1936-37	3.94
1937-38	3.40
1938-39	2.60
1939-40	2.42
1940-41	1.95
1941-42	5.30
1942-43	5.04
1943-44	4.20
1944-45	2.85
1945-46	1.84
Oct. 1, 1946	.77
Nov. 1, 1946	10.00

Tall Oil Production

April-March Year	*Gum and Wood Rosin Production drums of 520 lbs.*	*Refined tall oil Production (calculated from crude by estimating 25% of refining loss) drums of 520 lbs.*	*% Refined Tall oil of Rosin Production*
1940-41	1,717,492	52,956	3%
1941-42	1,708,475	77,558	5%
1942-43	1,655,804	137,829	8%
1943-44	1,462,831	203,154	14%
1944-45	1,317,912	230,942	18%
1945-46	1,452,036	273,502	19%
Calendar year			
1944	1,336,607	228,327	17%
1945	1,391,599	280,740	20%
1st qtr. 1946	302,054	61,760	20%
2nd qtr. 1946	416,690	73,900	18%

Rose Exterminator Co., Chicago, has announced the opening of a new office at 823 Commerce Bldg., Rochester. Donald H. Lewis is the manager of the new office.

J. Harvey Sturgeon of Sturgeon Pest Control Co., Louisville, elected president of The National Pest Control Association at New Orleans meeting, Oct. 28-30. For meeting story see Pg. 161.

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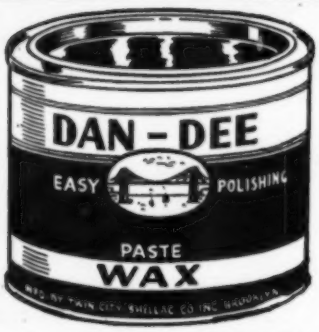

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Table II

Compound	Parts per Million
I—*Two or more benzene rings, halogen on ring and aliphatic carbon*:	
1-Trichloro-2-(p-chlorophenyl)-2-(o-chlorophenyl)ethane	0.025
1-Trichloro-2-(p-chlorophenyl)-2-(m-chlorophenyl)ethane	.005
1-Trichloro-2-phenyl-2-(p-chlorophenyl)ethane	.01
1,1-Dichloro-2,2-bis(p-chlorophenyl)ethane	.0025
1-Chloro-2,2-bis(p-chlorophenyl)ethane	.1
1,1-Dichloro-2-(p-chlorophenyl)-2-(o-chlorophenyl)ethane	.025
1,1,1,2-Tetrachloro-2,2-bis(p-chlorophenyl)ethane	.1
1-Trichloro-2,2-bis(p-bromophenyl)ethane	.0025
1-Tribromo-2,2-bis(p-chlorophenyl)ethane	.05
1-Tribromo-2,2-bis(p-bromophenyl)ethane	10[1]
1-Trichloro-2,2-bis(p-fluorophenyl)ethane	.01
1,1-Dibromo-2,2-bis(p-chlorophenyl)ethane	10
1,1-Dibromo-2,2-bis(p-bromophenyl)ethane	10
1,1-Dichloro-2,2-bis(p-chlorophenyl)ethylene	1.0
1,1-Dichloro-2,2-bis(p-bromophenyl)ethylene	10
1-Trichloro-2,2-bis(5-chloro-2-hydroxyphenyl)ethane	>10
1-Trichloro-2,2-bis(3,5-dichloro-2-hydroxyphenyl)ethane	.025
1-Trichloro-2,2-bis(5-chloro-2-methoxyphenyl)ethane	>10
1-Trichloro-2,2-bis(3,5-dichloro-2-methoxyphenyl)ethane	>10
1-Trichloro-2,2-bis(3,5-dichloro-4-methoxyphenyl)ethane	10
Dinitro-1-trichloro-2,2-bis(p-chlorophenyl)ethane (position of nitro groups not known)	>10
1-Trichloro-2,2-bis(4-chloro-3,5-dinitrophenyl)ethane	>10
Chlorobis(p-chlorophenyl)methane	>10
Bromobis(p-chlorophenyl)methane	10
p-Chlorophenylphenyldichloromethane	10
1-Trichloro-2,2-dichloro-3,3-dichloro-4,4-bis(p-chlorophenyl)butane (tentative name)	10
2,2,3,3-Tetrachloro-1,1,4,4-tetrakis(p-chlorophenyl)butane	>10
II—*Two benzene rings, halogen on aliphatic carbon only*:	
1-Trichloro-2,2-diphenylethane	1.0
1-Trichloro-2-phenyl-2-biphenylethane	>10
1,1-Dichloro-2,2-diphenylethylene	10
1-Trichloro-2,2-bis(p-hydroxyphenyl)ethane	>10
1-Trichloro-2,2-bis(p-methoxyphenyl)ethane	.01
1-Trichloro-2,2-bis(2,5-dimethoxyphenyl)ethane	>10
1-Trichloro-2,2-bis(3,4-dimethoxyphenyl)ethane	>10
1-Trichloro-2,2-di-p-tolylethane	.01
1-Trichloro-2,2-bis-(p-tert.-butylphenyl)ethane	>10
1-Trichloro-2,2-bis-(p-acetoxyphenyl)ethane	10
1-Trichloro-2-(p-nitrophenyl)-2-(m-nitrophenyl)ethane	>10
Dinitro-1-trichloro-2,2-di-p-tolylethane (position of nitro groups not known)	>10
III—*Two or more benzene rings, halogen on ring only*:	
Bis(p-chlorophenyl)methane	1.0
o,p'-Dichlorodiphenylmethane	1.0
Bis(p-bromophenyl)methane	1.0
Bis(p-chlorophenyl)methanol	10
1,1,2,2-Tetrakis(p-chlorophenyl)ethylene	>10
Bis(5-chloro-2-hydroxyphenyl)methane	10
Bis(3,5-dichloro-2-hydroxyphenyl)methane	10
Bis(2,4,6-trichloro-3-hydroxyphenyl)methane	>10
1,1-Bis(5-chloro-2-hydroxyphenyl)ethane	10
Bis(p-chlorophenyl)acetic acid	10
Bis(p-chlorophenyl)acetamide	>10
Bis(p-chlorophenyl)methyl methyl ether	10
p-Chlorobenzophenone	10
p,p'-Dichlorobenzophenone	10
IV—*One benzene ring, aliphatic—CCl_3 group*:	
alpha-Trichlorotoluene	>10
alpha,alpha,alpha,2-Tetrachlorotoluene	10
alpha,alpha,alpha,3-Tetrachlorotoluene	1.0
alpha,alpha,alpha,4-Tetrachlorotoluene	>10
alpha,alpha,alpha,3,4-Pentachlorotoluene	>10
alpha,alpha,alpha,2,4-Pentachlorotoluene	10
alpha,alpha'-Hexachloro-o-xylene	10
alpha,alpha'-Hexachloro-m-xylene	10
alpha,alpha'-Hexachloro-p-xylene	10
alpha,alpha',alpha"-Nonachloromesitylene	>10
1-p-Chlorophenyl-2-trichloroethanol-1	>10
1-Phenyl-2-trichloroethanol-1	>10
1-o-Chlorophenyl-2-trichloroethanol-1	10
V—*Analagous structure, no halogen*:	
1,1-Diphenylethane	10
1,1-Diphenylethylene	10
Diphenylmethane	10
VI—*Related sulfur compounds*:	
p,p'-Dichlorodiphenyl sulfide	0.1
p,p'-Dichlorodiphenyl sulfoxide	10
p,p'-Dichlorodiphenyl sulfone	1.0
1-o-Chlorophenyl-2-trichloroethyl-p-chlorobenzene sulfonate	>10

[1] Insoluble in acetone.

MOSQUITO LARVACIDES

(*From Page* 119)

1944. Uber Konstitution und toxische Wirkung von naturlichen und neuen synthetischen insektentotenden Stoffen. Helvetica Chim. Acta 27:892-928.

Martin, H., A. Stringer, and R. L. Wain. 1943. The qualitative examination of insecticidal properties. Progress report. Bristol Univ., Agr. and Hort. Res. Sta. Ann. Rpt. 1943:62-76.

Prill, E. A., A. Hartzell, and J. M. Arthur. 1945. Insecticidal activity of some alkoxy analogs of DDT. Science 101:464-5.

Siegler, E. H., and S. I. Gertler. 1944. Toxicity of diaryl trichloroethanes and dichloroethylenes to codling moth. Jour. Econ. Ent. 37:845.

DDT Preparation

Chloral and chlorobenzene have been condensed in the presence of hydrogen fluoride to give good yields of DDT. Copper and stainless steel equipment were used successfully, with slight corrosion in the latter case. J. H. Simons, J. C. Bacon, C. W. Bradley, J. T. Cassaday, E. I. Hoegberg, and P. Tarrant. *J. Am. Chem. Soc. 68*, 161'-15 (1946).

Non-Toxicity of DDT

Fifteen men were employed for months spraying ships and shore establishments in Colombo with a 5 per cent solution of DDT in kerosene. They wore very little protective clothing because of the heat, and the solution was in contact with their skin for long periods. None showed any ill effects. F. M. G. Stammers and F. G. S. Whitfield. *Nature 157*, 658 (1946).

QUATERNARY TESTING

(*From Page* 131)

Iodine-Iodide Methods

A FEW procedures have been suggested which use iodine-potassium iodide. The principle involved has been thought, variously, to be a combination between the cation and the complex iodide anions together with an adsorption of iodine by the cationic micelles (6), or solely to the formation of a tri-iodide (9).

The method of DuBois (6) consists of titrating a solution of about 0.05 g. of the cation-active compound in 500 ml. of water, with N/10 iodine

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in the presence of 5 ml. 20% potassium iodide and 10 ml. 1% starch solution. The end-point is very gradual and is reached when the solution changes from green to blue. The end-point varies with each compound tested, necessitating the selection of a different one for each compound titrated. The average error is as low as ±1.5%, but can be as high as ±10%. The difficulties encountered with this method and the availability of simpler methods make this method of little value for the estimation of the usual germicidal quaternary ammonium compounds, although it is useful with other surface active cations which do not respond easily to other tests.

The method of Hager et al. (9) is very similar to the above and varies from it only in the fact that starch is not used. The results are estimated on the basis of the color of the turbidity obtained upon addition of a given quantity of iodine-potassium iodide reagent. In practice, it is extremely difficult to detect such slight differences in color and for that reason, we have not been able to obtain reproducible results with this method.

Hager et al. (9) have suggested a more elaborate method using the same principle, but based upon the potentiometric titration of the solution of a high molecular quaternary ammonium salt with iodine-potassium iodide, which is also an oxidizing agent. When a slight excess of the reagent is present a higher oxidation potential is shown than when an excess of the quaternary ammonium salt is present. The method is claimed to give very reproducible results.

Miscellaneous methods

AS mentioned earlier, the high-molecular quaternary ammonium compounds form insoluble salts with various high molecular anions, other than dyes and surface active anions. These precipitation reactions also have been used for estimating surface active cations.

Ferricyanide method (13)

THE procedure is as follows: 1 g. of the high-molecular quaternary ammonium compound is dissolved to 100 ml. with water in a volumetric flask. 25 ml. of this solution are transferred to a 100-ml. volumetric flask, and 5 ml. of buffer (260 g. sodium acetate and 250 ml. 36% acetic acid made up to 1 liter with water) and exactly 50 ml. of 0.01N potassium ferricyanide are added. The solution is made up to 100 ml. with water and allowed to stand for one hour with occasional shaking. It is next filtered through a dry No. 50 Whatman paper and the first 20 mil. of filtrate are discarded. Exactly 50 ml. of the subsequent filtrate are transferred to a 250-ml. flask, and 5 ml. potassium iodide and 5 ml. dilute hydrochloric acid are added. After one minute, 10 ml. of 10% zinc sulfate are added and the solution is titrated with 0.01N sodium thiosulfate, using starch as the indicator, near the end-point. We have no experience with this method.

Potassium dichromate method

FLOTOW (8) has described the following test: 5 ml. of a 20% solution of the cationic germicide are mixed with 3 drops of acetic acid and 20 ml. 0.1N potassium dichromate. After 24 hours, the solution is filtered through cotton and the precipitate washed 3 times with 5 ml. water. The filtrate and wash liquors are made up to 50 ml. and 25 ml. of this solution are titrated with sodium thiosulfate, after the addition of 5 ml. 5% potassium iodide and 10 ml. 25% sulfuric acid.

Flotow also described another method using potassium permanganate. We have not investigated these two procedures.

Estimation of the Anions

MOST of the cationic germicides available today are halides. In these cases it is possible to estimate the anion by various argentimetric titrations. Such procedures have been used by several authors, in combination with nitrogen determinations, to ascertain the purity of quaternary ammonium preparations. Undoubtedly, the several available argentimetric procedures, e.g. Volhard's, Mohr's and Fajans', are applicable for this purpose. However, two procedures have been particularly recommended for use with high-molecular quaternary ammonium compounds.

DuBois (7) has recently reported a modification of Fajan's method, which is claimed to give more accurate results than Mohr's. This method, applied to crystalline cationic germicides, was found to give values for the molecular weight which were in good agreement with those obtained by Kjeldahl nitrogen determinations. The method consists of diluting a 0.4 g. material (on basis of active ingredient) with 25-50% aqueous isopropyl alcohol, and titrating with N/10 silver nitrate, using Eosin Y or dichlorofluorescein as indicators. The end-points are very sharp.

The other method (14) is essentially Volhard's procedure, and consists of dissolving 2 g. of the quaternary ammonium compound in 30 ml. water, adding 10 ml. nitric acid and 50 ml. N/10 silver nitrate, and making the solution up to 100 ml. After mixing and filtering, 25 cc. of the filtrate are titrated with N/10 ammonium thiocyanate, in the presence of 1 ml. 10% ferric ammonium sulfate.

Other tests

ALTHOUGH the above methods for the estimation of both the cation and the anion in high molecular quaternary ammonium compounds, would be sufficient to allow for the characterization and analysis of any such compounds, it may be desirable to supplement these by Kjeldahl nitrogen determinations. In this respect, the use of selenium has been recommended (13) to accelerate the digestion of the compound.

Since most cationic germicides are available in the form of aqueous solutions, it is, of course, desirable to ascertain the content of solid material in the preparation. For this purpose, simple drying to constant weight on sand at 100° has been found suitable. A more elaborate procedure, using acetyl chloride and pyridine has been suggested (13).

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WETTING AGENTS

(*From Page* 43)

drums. Use of efficient wetting agents enables crust goods to be warehoused, sorted for qualities and colors, degreased and handled with ease and economy in the dry condition. A one-half to one per cent solution of wetting agent is generally sufficient to soak back chrome goods and to prepare for dyeing with acid or basic or direct colors. Some tanners make use of a bath of wetting agent after neutralizing and prior to drying, so that the stock will soak back very easily by merely drumming in water.

For the cleaning of crust vegetable stock, that is, removal of surface grease, excess tannins and dirt, the use of a small quantity of wetting agent is recommended. By its use, leather can be soaked back in a drum and thoroughly cleansed without the use of alkalies. They are to be avoided as far as possible as they exercise a drastic stripping action on the tannins and also make the leather somewhat dark in color.

Modern dyeing practice encourages the use of small percentages of wetting agents in the dyebath as a means of ensuring level dyeing. Such compounds as the sodium alkyl sulfates are also valuable additives to basic dye liquors for brush staining and spraying. Their inclusion in dye liquors tends to reduce the risk of patchy shades.

In the preparation of fat-liquors, emulsifying agents are needed and some modern wetting agents possess excellent emulsifying properties. At the same time it is necessary to employ the minimum quantity of penetrant as too much tends to make the finished leather too soft and cloth-like. The sodium alkyl sulfates are particularly suitable for this application and may be used in conjunction with sulfonated oils and in place of soap. Not only are these synthetics capable of making more stable emulsions, but as the emulsions are not alkaline, there is much less tendency for dyestuffs, such as the acid dyes, to be stripped from the leather.

In the fur and allied trades one of the most useful applications of wetting agents is for scouring, particularly where hard waters are used or in the presence of calcium salts. It is notoriously difficult to achieve a full wetting of furs during the "killing" operation and here the modern wetting agents can be of considerable assistance.

Summing up it can be said that the tanner looks for a wetting agent able to meet his many requirements. At present he is being served with many wetting, emulsifying and softening agents, some of which differ in name only. He considers this uneconomical and confusing and is of the opinion that there is a good market for an all around penetrant able to give reasonable satisfaction for all processes.

DDT FOR ROACHES

(*From Page* 123)

eradication can be obtained. A small paint brush is convenient and satisfactory for applying the 5 per cent DDT solution to some of the places that should be treated for the control of the brown-banded roach.

Toxicity of DDT

DDT is toxic to man, but the experience of workers in the Bureau and its extensive use in Army mess halls have shown that it can be used with safety as a household insecticide if it is properly labeled, if it is applied as recommended, and if normal precautions are followed as recommended here. On the basis of experimental work on animals, the Food and Drug Administration and the National Institute of Health have stated that DDT is less toxic than sodium fluoride, which has commonly been used as a roach poison, and, moreover, that DDT is not a caustic poison or a primary irritant, and probably not a sensitizing agent.

Breathing of large amounts of fine spray mist from a 5 per cent DDT solution should be avoided. During the course of an ordinary home treatment the kerosene and other solvents used with DDT could cause headache or nausea if breathed for several hours. There will be little risk involved if the proper type of sprayer is used.

Excessive or repeated exposure of the skin to an oil solution of DDT should be avoided. If spilled on the hands, it should be washed off with soap and warm water, and the hands should be washed when spraying is completed. The same precautions should be observed in handling the concentrate from which emulsions are made. The spray emulsion itself is less dangerous.

There is little to be feared in handling the dust, a water suspension, or dry deposit left on treated surfaces when the spray liquid has evaporated.

As is the case with all oil sprays, including the ordinary household fly spray, the spray mist of the DDT-oil solution should not be exposed to open flames or heated surfaces.

Containers of DDT insecticides should be kept out of the reach of children, and DDT dusts should be plainly labeled to prevent their being mistaken for flour, baking powder, powdered sugar, or some other food material.

While the treatment is being made, foods, dishes, silverware, and kitchen utensils should be covered or removed to prevent contamination. Unprotected foods should not be placed on shelves recently treated with a dust or spray. Packaged foods can be replaced in sprayed cupboards, cabinets or drawers as soon as the spray has dried. This will often take 3 or 4 hours.

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TECHNICAL Briefs

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Disinfectant Fluids

An aliphatic hydroxy compound and an aryl aliphatic hydroxy compound containing the hydroxy group in the aliphatic side chain, are added to disinfectants of the white fluid type and containing tar acids or phenols, with or without addition of coal-tar oils or petroleum oils and a protective colloid as an emulsifying agent. The stability of the disinfectant fluid at low temperatures is thus improved. A compound such as ethylene glycol or a sugar may be used. Jeyes' Sanitary Compounds Co. Ltd. and J. Gibson. British Patent No. 565,473.

Air Disinfection

While air disinfection with hypochlorites was introduced many years ago, it is still a simple and effective treatment. Research has added to a knowledge of proper concentration, effect of humidity, and effect of temperature. The concentration used varies from 0.1 to 1 p.p.m. Some people object to more than 0.3 p.p.m. of hypochlorous acid vapor, while most people will notice a concentration of 0.4 p.p.m., but will consider it only a freshening effect. Wet mists of bacteria succumb readily to low concentration of hypochlorite, so that the relative humidity should preferably be 70 per cent for high bactericidal action. At a relative humidity of 30 per cent the process fails entirely. Humidity and temperature are closely related. Bactericidal action is pronounced at temperatures down to 55°F. with a relative humidity of 50 per cent, when under similar conditions but with relative humidity of 45 per cent, bactericidal action fails at 70°F. In well ventilated rooms humidities below 50 per cent are rare. J. Wolf. *Manufacturing Chemist* 17, 289-92 (1946).

Delousing Agent

Preliminary tests with several fumigants showed that methyl bromide is the best suited for delousing clothing and equipment under military conditions. The tests were made with eggs of the body louse which is the most resistant stage of the insect.

The following three methods were developed for application in the field: (1) vault fumigation in which quantities of bagged clothing were exposed to methyl bromide in a demountable gastight vault; (2) individual bag fumigation in which one soldier's outfit was exposed in a gastight fumigation bag; and (3) pit fumigation in which from one to many bags of clothing were fumigated in a pit dug in the ground.

In vault fumigation a dosage of 9 pounds of methyl bromide per 1000 cubic feet was recommended at temperatures above 16°, and 12 pounds at temperatures below 16°C. The bags used for individual fumigation were 25-28 inches wide and 50 inches long, made of material coated with ethyl cellulose or "Neoprene" to make them relatively gastight. The methyl bromide was contained in a glass ampoule which was broken inside the sealed fumigation bag. A standard dosage of 20 cc. per bag was selected. Pit fumigation at dosages comparable to those used in the other methods was also effective. Methyl bromide can be rapidly removed from clothing by aeration. Even without aeration no dermatitis resulted in tests with army personnel. R. Latta, H. H. Richardson, and J. B. Kindler. U. S. Dept. Agr., Circ. 745, 40 pp. (1946).

Toxicity Studies

Exposure to 10 per cent powdered DDT or 666 (hexachloro cyclohexane) respectively, paralyzed flies in 7 minutes, bedbugs in 45 minutes, and fleas in 20 minutes. Flies were dead after 37 minutes. Both insecticides prevented fleas from biting so that these compounds are protective on the skin. Lice were killed in 24 hours.

DDT was toxic to rabbits and mice only if administered in oil solution; 666 given orally to rats and guinea pigs was toxic only in doses of more than 1.25 grams per kilogram. G. P. Gil. *Medicina colonial* 7, 209-42 (1946).

DDT Antifouling Agent

DDT incorporated in a marine paint is effective in inhibiting the development of barnacles although it does not provide effective control of other organisms which cause fouling of ship bottoms. It does not wash away in sea water over a four month period. The experiments suggest that an ideal ship-bottom finish could combine the more general effectiveness of copper in paint with the relatively specific antibarnacle effect obtained with DDT. J. F. Marchand. *Science* 104, 74-5 (1946).

Spray Testing Chamber

The chamber consists of metal-spraying cabinet surrounded by a masonite chamber with an air space between. It is designed especially for use with adult mosquitoes. Temperature and humidity control are provided. The insects are placed in cages within the chamber and can be observed for knockdown readings. Results of tests with pyrethrum, DDT, and activated sprays were satisfactory. W. A. L. David. *Bull. Entomol. Research 36*, 373-93 (1946).

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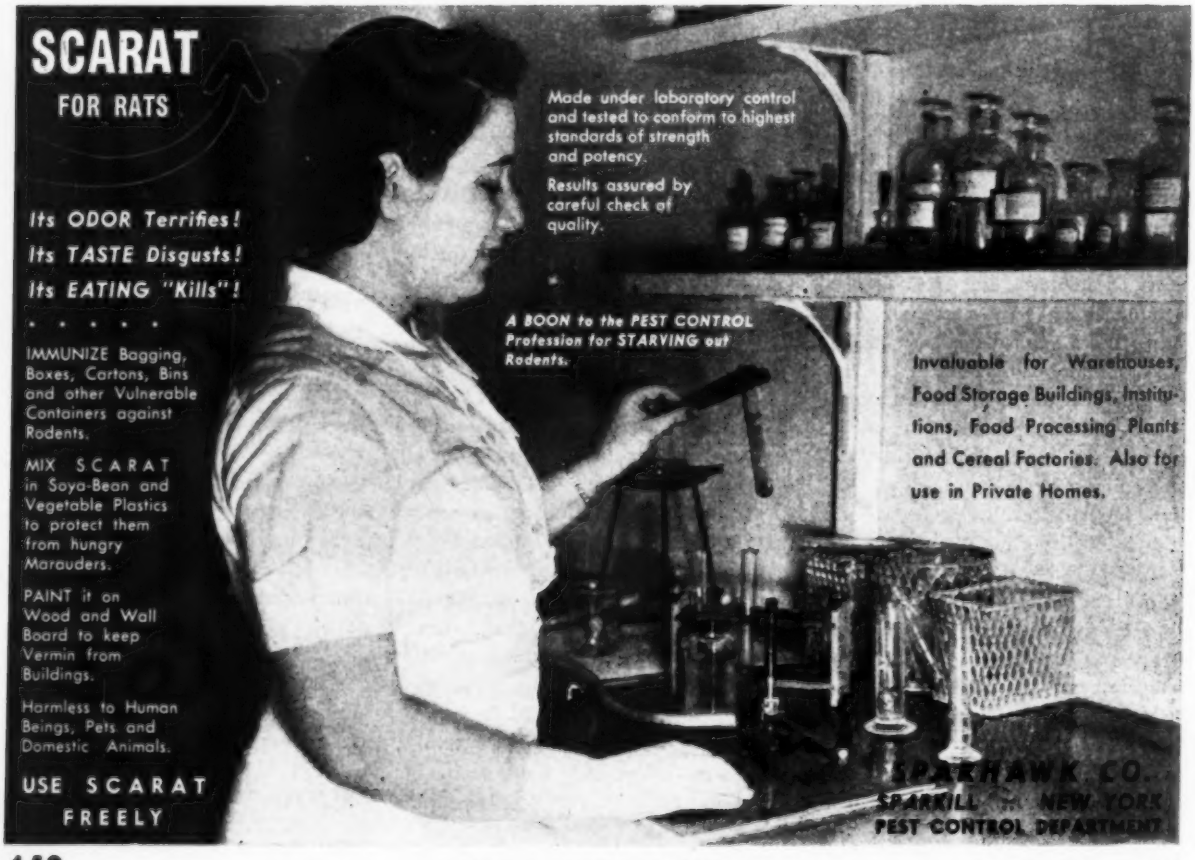
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DDT Analysis

There are eight chemical methods for DDT analysis; the pyridine-xanthydrol reaction, Friedel-Craft reaction, nitration in sodium methylate, total chlorine determination, total chlorine by combustion (modified Winter reaction), reduction by metallic sodium in benzene, labile chlorine determination, and determination of the para,para' isomer by crystallization from alcohol. A chemical method distinctly specific for DDT is needed. J. M. Ginsburg. *J. Econ. Entomol.* 39, 174-7 (1946).

Fungicidal Activity

Biological tests have been made to determine the fungicidal potency as mildew preventives on cotton fabric of a group of bisphenols and related compounds. Experimental strips of cloth were inoculated with spore suspensions of various fungi, later washed, dried and tested for tensile strength on a Scott Tester. Substitution of two chlorine or two bromine atoms for hydrogens of bisphenols in the positions para to the phenolic hydroxyls invariably increased fungicidal potency over that observed with the unhalogenated diphenols. Further symmetrical halogen substitution resulted in compounds which were generally and in certain cases distinctly less potent than the dihalogen derivatives. No compound was found to be more fungicidal per unit weight on the fabric than 2,2'-methylene bis (4-chlorophenol). Methods for testing fabric mildew preventives are discussed. P. B. Marsh and M. L. Butler, *Ind. Eng. Chem.* 38, 701-5 (1946).

Impregnating Uniforms

Dibutyl phthalate was adopted by the Australian army for protecting troops from mite-born scrub typhus. Equally effective mite control was obtained with the more readily available dimethyl phthalate, which was adopted by the U. S. Army for this purpose and used widely and successfully on troops during the last year of the war. The phthalates are used in 5 per cent emulsion in 2 per cent laundry soap solution, in which the clothing is dipped. Treated clothes protect from mites for five weeks of wear, and retain toxicity to mites after profuse sweating, short periods of wading in salt or fresh water, or rinsing in cold water, but not after laundering or prolonged wading. R. C. Bushland. *Am. J. Hyg.* 43, 219-29 (1946).

Germicidal Detergent

A drawback to the general use of quaternary ammonium salts in cleansing operations is their incompatibility with soap. Soap must first be rinsed away, and then the germicidal solution is used, followed by rinsing. This involves more steps than are usually practicable.

A new quaternary ammonium germicide has recently appeared which is said to be efficient both as a germicide and as a detergent. It is called "Biopal G," and has a phenol coefficient at 20°C. of 12.5 toward *eberthella typhosa*, and 14 toward *staphylococcus aureus*. Alkalinity increases the germicidal efficiency but soap destroys it and should never be added because the germicide itself possesses the necessary cleansing properties. For most uses 1 ounce to 5 gallons of water is sufficient for cleansing and disinfecting, as in washing floors, walls, furniture, for the sanitation and cleansing of eating and drinking utensils, and in the dairy industry for washing milking machines. H. C. Borghetty. *Rayon Textile Mo.* 27, 369,071 (1946).

DDT Determination

Either of two colorimetric methods may be used for determining DDT. One is based on nitration and reduction to a colored amino compound, probably the tetra-amino compound, the second on the purple color produced when alcoholic potassium hydroxide is added to the tetranitro compound of DDT. Application of the method to determination of DDT on apple peelings is described. E. T. Illing and W. H. Stephenson. *Analyst 71*, 310-14 (1946).

Fumigant Patent

An insecticidal composition adapted for use as a fumigant is an *alpha*-chloropropionitrile. I. Hechenbleikner, to Am. Cyanamid Co. Canadian Patent No. 433,647.

DDT As Lousicide

The head louse, *pediculus capitis*, common to children has been found to respond well to insecticidal effect of DDT in a number of tests on school children in Rochester, N. Y. A preparation of DDT powder (10 parts DDT and 90 parts inert powdered talc) was utilized. The DDT powder was sprayed from a small atomizer on the child's head, a paper towel being placed over the eyes to prevent any irritation. A towel placed over the scalp prevents loss of the powder and holds the lice that come to the surface. After seven days, another application of DDT powder was made, following a shampoo given the previous evening. The results have been most satisfactory. In all cases treated, the live *pediculi* have been killed, usually within two hours. The removal of the nits has been thorough in many instances but incomplete in others. Thus far, the treated cases have shown no recurrences within four weeks, which would seem to indicate that the repeated treatments have been effective in either destroying the eggs or in retarding their developmental cycle. There have been no ill effects of any kind thus far and the treatment has evoked no resistance on the part of the children or adults so treated. Thus far, 350 children have been treated. None of the children developed recurrences of lice within a four weeks' period. Albert D. Kaiser, Rochester Health Officer, *Amer. J. Public Health*, 36, Oct., 1946, p. 1133.

Diluents for Dusts

A number of samples of diatomaceous earth were used as diluents for derris powder in comparison with pyrophyllite as a standard. In laboratory tests against *Aphis rumicis*, one diluent was superior, two approached pyrophyllite, and one was somewhat less effective than pyrophyllite. Derris toxicity could not be correlated with the physical characteristics of the diluents. The more effective materials performed relatively better in comparison with pyrophyllite in the field than in the laboratory. N. Turner. *J. Econ. Entomol.* 39, 149-58 (1946).

LIQUID SOAP GRAVITY SYSTEMS

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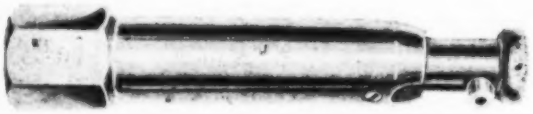

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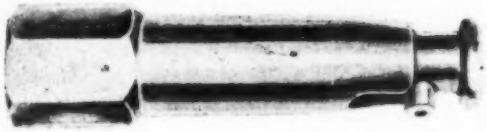

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DDT Rules in Food Handling

In reply to an inquiry by the Agricultural Insecticide & Fungicide Association, the Bureau of Foods and Drugs, New York City Department of Health, has offered the following rules suggested by the Fumigant Board of the Department, for the use of DDT in food establishments:

1. Solutions up to 5 per cent may be used in food establishments on walls, screens, floors, but not on ceilings.

2. Solutions may be used on walls, windows, and sidewalks outside of the establishment.

Precautions to be observed for use within the building must be taken as follows:

a. Individuals applying the spray must be properly protected against skin exposure by use of protective clothing, and impervious gloves. They must also be provided with a proper respirator to prevent excessive inhalation of vapors.

b. All exposed food stuffs are to be removed.

c. Vats, kettles, utensils, and machinery used in food processing must be covered.

d. Residual sprays are not to be applied to ceilings.

e. DDT powders are to be colored with a color acceptable to the Board.

If a space spray is to be used in a food establishment, the strength of the solution may be up to 2 per cent, and the same precautions as indicated above are to be observed.

DDT powder mixtures up to 10 per cent may be used within a food establishment provided such powder is colored with an acceptable color, and provided that proper precaution is used in the application of such a product.

Differentiating Compounds

To determine low concentrations of DDT in dust and biological materials, the ultraviolet and infrared absorption spectra and x-ray diffraction patterns of DDT and its derivatives were compared. The ultraviolet absorption spectra, with isooctane as solvent gave distinct curves for each substance, dichloro diphenyl dichloroethylene, dichloro diphenyl acetic acid, dichloro diphenyl methane, and dichloro diphenyl ketone. The infrared absorption spectra, measured in the 1-13 micron range with carbon tetrachloride and carbon disulfide as solvents, showed differences sufficient to permit determination of any one of the compounds in the presence of any combination of the others. X-ray diffraction patterns in some cases permitted detection of the components in mixtures. H. L. Andrews, Wm. C. White, Loubov R. Gamow, and D. C. Peterson. *U. S. Pub. Health Repts.* 61, 450-6 (1946).

Slime Control Agent

Effective control of slime, particularly in pulp and paper mills, can be obtained by using the new fungicide made by the Mallinckrodt Chemical Works of St. Louis. The product, called "Pyridose," is pyridyl mercuric acetate, and has the outstanding fungicidal and bactericidal properties of mercurials plus good water solubility. The compounds formed with ions commonly present in the water are more soluble than the corresponding salts of other organic mercurials.

"Pyridose" in a concentration of 0.0001 per cent is said to inhibit the growth of Aerobacter aerogenes: 0.000051 per cent inhibits the growth of Bacillus mycoides; and 0.005 per cent inhibits the growth of Aspergillus niger. The compound reacts with chloride present in water to form pyridyl mercuric chloride. *Chem. & Met. Eng.* 53, No. 7, 153 (1946).

Aerosols versus Liquids

The action of 17 common disinfectants including cresol, lysol, and zepherol was much greater in aerosol form than in aqueous solution. Aerosols are more active when the concentrated forms are nebulized, and the finer the mist is the better. Drops dispersed in air are not reliable as they settle out too rapidly. H. Kliewe. *Zentr. Bakt. Parasienk. I*, 148, 388-95.

Rodenticide Assay

Eight rodenticides were bioassayed, using 406 recently trapped adult Norway rats. The median lethal doses in milligrams per kilogram of body weight were: sodium fluoroacetate 0.22, strychnine sulfate 4.8, alpha-naphthylthiourea 6.9, thallium sulfate 15.8, zinc phosphide 40.5, arsenic trioxide 138, fortified red squill: females 133, males 276, barium carbonate 1480. The only sex variation was in the case of red squill. S. H. Kieke and C. P. Richter. *U. S. Pub. Health Rep'ts.* 61, 672-9 (1946).

Benzene Hexachloride

Directions are given for preparing the pure gamma isomer of benzene hexachloride, called "gammexane." The solubilities in 19 common solvents and the melting points are listed for the alpha, beta, gamma, and delta isomers. Preliminary tests showed the gamma isomer to be 5 to 10 times more effective than any other insecticide to date against many household insects such as carpet beetles, clothes moths, flies, lice, silverfish, and ants. The gamma isomer is relatively nontoxic to animals and man. G. R. Chamlin. *J. Chem. Education* 23, 283-4 (1946).

Effect of Light on DDT

Surfaces of wood and glass were sprayed with DDT solutions, emulsions and suspensions, and exposed to ultraviolet light and sunlight. Various auxiliary solvents used were isophorone, refined high-boiling polymethyl naphthalenes, trichloro ethylene, mixture of mono- and dimethylnaphthalenes, tetralin, benzyl benzoate, motor oil, xylene, and cyclohexanone. Exposure of such DDT preparation to ultraviolet light and sunlight usually reduced the knockdown time of houseflies. Preparations containing several high-boiling auxiliary solvents showed the greatest reduction. The auxiliary solvents used in kerosene-DDT residual sprays should have the boiling range of kerosene or lower. A more thorough study of solvents with boiling ranges close to that of kerosene is needed. Solvents with very low flash points should be avoided. Xylene-DDT emulsions and aqueous suspensions were less affected by light than DDT solutions. A. W. Lindquist, H. A. Jones, and A. H. Madden. *J. Econ. Entomol.* 39, 55-9 (1946).

Mildew Resistance Tests

Tentative methods are described for determining the mildew and rot resistance of textiles and the effectiveness of textile fungicides. Details of a number of different laboratory tests are given. *Am. Dyestuff Reporter* 35, P274-6, 282 (1946).

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THE SUPER FLOOR TREATMENT

Scuff or mar a floor treated with RexGlo-X. Then wipe clean and buff with a soft cloth. Unlike ordinary floor treatments RexGlo-X is not brittle . . . it does not scratch. Any scuff marks which appear are easily wiped out with machine polishing or a yarn dust mop. There is no water-spotting and dust does not adhere to the surface.

RexGlo-X dries almost instantly to a rich, high luster which may be converted to a brilliant gloss by polishing, if desired. Non slippery. Immediately waterproof. Applied with sheepskin applicator or string mop to linoleum, asphalt tile, composition flooring, varnished, sealed, shellacked or painted wood, marble, terrazzo, tile, rubber, and painted or "raw" cement. Priced right for profitable selling.

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C. L. WEIRICH
Program Chairman

THE tentative program for the 33rd annual meeting of the National Association of Insecticide and Disinfectant Manufacturers, to be held at the Hotel Commodore, New York, Monday, Tuesday and Wednesday, Dec. 2, 3 and 4, has just been issued. A three day affair, program chairman and co-chairman for which are C. L. Weirich of C. B. Dolge Co., Westport, Conn., and L. J. Oppenheimer, West Disinfecting Co., Long Island City, N. Y., respectively, this year's program will be broken up into sessions classified according to subject. There will be morning and afternoon sessions devoted to sanitary chemicals; the Disinfectant Section will cover a single morning session. Tuesday afternoon will be open. Other sessions of the meeting will be devoted to insecticides, rodenticides and general association matters.

In addition to general sessions, the following committee meetings are planned for the convention: Sunday (Dec. 1, 1:30 p.m.), Insecticide Scientific Committee; 2:30 p.m., Dec. 1, Disinfectant Scientific Committee; Dec. 2, at luncheon, the Associate Members Committee meets; Dec. 3, (time not yet set), Aerosol Committee; Sanitary Specialties Scientific Committee (5 p.m., Dec. 3 and Sprayer Committee, Dec. 3 (no time set as yet).

Among one group of papers scheduled for presentation at the meeting are: "Industrial Soaps, Their Properties and Special Uses," by J. W. McCutcheon, New York consultant; "Developments in Solvent Waxes," by Jacob Kahn, Windsor Wax Co., Hoboken, N. J., and "The National Sanitation Foundation," by Dr. Walter F. Snyder, School of Public Health, University of Michigan, Ann Arbor. Monday afternoon these papers are to be given: "Restaurant and Food Production Sanitation," by Dr. Israel Weinstein, Commissioner of Health, New York, N. Y.; "Can the Detergent Value of Dishwashing Compounds be Determined?" by W. D. Tiedeman, chief of the Bureau of Milk Sanitation, N. Y. State Health Department, Albany; "General Properties and Non-Germicidal Uses of Surface Active Cations," by Robert R. Ackley, Onyx Oil & Chemical Co., Jersey City, N. J., and "Alkyl Aryl Sulfonates Derived from Petroleum," by Lawrence H. Flett, National Aniline Division, Allied Chemical & Dye Corp., New York.

Topics listed for discussion at other sessions of the convention include: "Organic Mercurials as Industrial Disinfectants," by J. P. O'Brien, F. W. Berk & Co., New York; "Some Postwar Problems in Testing Disinfectants," by L. S. Stuart, U. S. Department of Agriculture, Beltsville, Md.; "What a Quantitative Study of the F. D. A. Phenol Coefficient Test Procedure Shows," by Dr. Arthur R. Cade, Givaudan-Delawanna, Inc., Delawanna, N. J.; "A Possible Method of Determining Tack of Self-Polishing Wax Films," by Melvin Fuld, Fuld Bros., Baltimore, and "Our Heritage of Atomic Science," by William Laurence, Scientific writer for the *New York Times*.

That session of the program given over to insecticide subjects will include: "The Proposed Uniform State Insecticide and Fungicide Model Bill," by W. J. Zick, B. Heller & Co., Chicago and chairman of the Legislative Committee; "Antu," by James C. Munch, Munch Laboratories, Upper Darby, Pa., and "Benzene Hexachloride," by Dr. Alfred Weed, of John Powell & Co., New York. Wednesday afternoon, the final day of the meeting, will be highlighted by a discussion of: "The N.A.I.D.M. Exhibit," by A. W. Morrison, Socony-Vacuum Oil Co., New York, chairman of the Exhibit Committee; "Tests of a Chlorinated Bicyclic Terpene Against Certain Household Insects," by Dr. L. A. Sterns, University of Delaware, Delaware, Md.; "Biological Aerosol Tests," by H. H. Fales, U. S. Department of Agriculture, Beltsville, Md.; "The Expanding Field for Aerosols," by Dr. W. Dietz, Bridgeport Brass Co., Bridgeport, Conn.; "Consumer Appeal in Aerosol Packaging," by Clement H. Watson, of J. Walter Thompson, New York advertising agency, and "Insect Repellents," by Dr. Michel Pijoan, University of Colorado, Boulder, Col.

The annual informal reception and dinner will be held on Wednesday evening, Dec. 3. Complete registration fee for the three day meeting is $20 per person; single luncheon tickets each day are $4 and single informal dinner tickets for Wednesday night are $12.

The following chairmen will report on the work of their committees: J. C. Varley, Baird & McGuire, Inc., St. Louis, Disinfectant Scientific Com-

(*Turn to Page* 169)

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STATEMENT OF OWNERSHIP

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, and March 3, 1933, of Soap & Sanitary Chemicals, published monthly at New York, N. Y., for October 1, 1946.

State of New York, County of New York.

Before me, a Notary Public in and for the State and County aforesaid personally appeared Ira P. MacNair, who, having been duly sworn according to law, deposes and says that he is the Editor-in-chief of Soap & Sanitary Chemicals and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, MacNair-Dorland Company, Inc., 254 W. 31st St., N. Y. 1; Editor-in-chief Ira P. MacNair, 254 W. 31st St., N. Y. 1; Editor, Wayne E. Dorland; Business Manager, Thomas Morgan, 254 W. 31st St., N. Y. 1.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stocks, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the months preceding the date shown above is ——. (This information is required from daily publications only.)

IRA P. MacNAIR, Editor.

Sworn to and subscribed before me this 1st day of October, 1946.

HARRIET LEVINE, Notary Public.

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TRADE NEWS . . .

Kenya Group Visits in United States

Left to right: W. F. B. McLellan, R. E. Norton and R. H. O. Lopdell, members of a delegation from the Pyrethrum Board of Kenya, visiting the United States for discussions with American processors and importers. Mr. Norton is Commissioner for East Africa with offices in London, Mr. McLellan is chairman of the Pyrethrum Board of Kenya, and Mr. Lopdell is Assistant Manager of the Kenya Farmers' Association.

Joins Chi. Sanitary Prods.

Leo Lichtenberg recently joined Chicago Sanitary Products Co., Chicago, as assistant to Charles R. Lichtenberg, president. Mr. Lichtenberg has just returned to civilian life after serving as a first lieutenant in the army air force in the Pacific Theatre. He is a graduate of the University of Chicago.

♦

Consol. Chem. Adds Two

Two recent additions to the sales staff of Consolidated Chemical Co., Dallas, makers of "Conco" products, are Carl L. McCafferty as state sales manager and L. L. Boutwell as Dallas district manager. Mr. McCafferty is well known in high school football circles. Mr. Boutwell has traveled New Mexico and Colorado for fifteen years as a sanitary supply salesman.

♦

C. & C. Appoints Dr. Nale

Carbide and Carbon Chemicals Corp., New York, recently reported that Thomas W. Nale, MD., formerly plant physician of the south Charleston works, has been appointed assistant manager of the industrial toxicology department of Union Carbide and Carbon Corporation, New York.

Bri-Test Moves to Expand

Increased manufacturing facilities will be available to Bri-Test Products Corp., Newark, N. J., when they move to new quarters at 845 East 138th St., New York, sometime after the first of the year. Their new "daylight type" plant will provide 30,000 sq. feet of floor space and will be equipped with new modern processing machinery. More details on the out-lay will be published in December.

♦

Brazil Insecticide Market

If we are to maintain a dominant position as exporter of insecticides to Brazil, producers must grant price and credit terms in line with competitive European and other foreign sources of supply, according to a study by the U. S. Department of Commerce. While U. S. capital would be welcome, a greater interest exists in obtaining technical knowledge and assistance regarding insecticides. Insecticide consumption in Brazil is still relatively small for the size of the country and its varied and abundant insect life, states the report, and the market situation should be studied very closely in order to determine whether the investment of capital or technical assistance would be profitable.

♦

Nat. Can Appoints Statler

David C. Statler was recently appointed sales manager for National Can Company's St. Louis territory. An alumnus of Cornell University and an overseas veteran of World War I, Mr. Statler has been prominent in the canning field for many years.

Richards Jarden Dies

Colonel Richards Jarden, president of Franklin Research Co., Philadelphia, died October 17th. Colonel Jarden, born in 1892 in Philadelphia, spent his early life in the lumber industry. In 1931 at the low point of the depression years, he and Charles LaRoach, who has succeeded him as president, organized the Franklin Research Company, and put on the market one of the first water-emulsion, self-polishing waxes.

Col. Jarden was a veteran of both wars. In the first he was a lieutenant with the Corp of Engineers, served in France, and was among the few survivors of the torpedoing of the troopship *S.S. Tuscania*. During world war II he was a member of the general staff of the Pennsylvania Guard. He was a member of the American Legion, the Military Order of the World Wars, the Philadelphia Rotary, and Union League. The Colonel was known in the industry particularly for his original work on wax floor finishings and had written many articles on this subject.

Col. Richards Jarden

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REFINED CONCORD WAX 412-A REPLACES CARNAUBA IN SELF POLISHING WAX!

EMULSIONS MADE WITH CONCORD 412-A HAVE:

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L. I. Sanitary Now SWACO

Long Island Sanitary Supply Co., Woodside, N. Y., recently announced incorporation and will henceforth be known as Swaco Products, Inc. They state that ownership, management, and policies will remain unchanged and request that all communications and invoices be addressed to the successor corporation.

New Ded-Lee Insecticides

More information is now available on the new "Ded-Lee" brand insecticides manufactured by Perfex Chemical Laboratories, Inc., New York. "Ded-Lee" comes in two forms — an insect paste, packaged in 2 and 4 ounce collapsible tubes retailing for 35c and 60c respectively, and in a liquid form packed in a 20 ounce can retailing for $1.00. It also comes in gallon cans at $5.00.

A new formulation is used embodying DDT and "Velsicol 1068" plus three new synthetic organic chemicals designated as "dedlicide," "penticide" and "phenochlor." Perfex claims these new compounds to be superior to DDT and "1068." "Dedlicide" is closely related to the British insecticide, "gammexane" or "666" but the odor is said to be less irritating than that of "gammexane." "Ded-Lee," claimed to be a relatively non-poisonous, non-inflammable contact killer does not require baits and is said to leave an invisible film on oil painted walls, etc., that acts as a furniture polish.

Perfex is also producing a special concentrate called "Ded-Lee Super concentrate" which is marketed in pints at $3.50 and gallons at $25.00.

New Associated Insecticide

Associated Chemists, Chicago, manufacturers of insecticides and concentrates for the manufacturing and jobbing trades, announces a new insecticide concentrate, containing 20 per cent "Velsicol 1068 Technical," to be marketed as "Peton R10." A companion product, "Peton 200," contains both "Velsicol 1068 Technical" and pyrethrum. Arthur Srebren is president of the firm.

Shown at the right is the exhibit by Carbide and Carbon Chemical Corp., New York, of its new "6-12" brand insect repellent. A cage full of mosquitoes in the booth offered visitors a chance to test the product for themselves. The exhibit was part of the Chicago Chemical Exposition's "Chemical Trail Blazers" education feature and was displayed of the Chicago Coliseum in September.

Knipling Chief Entomologist

Edward F. Knipling was recently appointed chief of the division of insects affecting man and animals of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture. He has been connected with the bureau since 1931, and he succeeds as chief Emory C. Cushing who has resigned from government service. As senior entomologist in charge of the division's laboratory at Orlando, Mr. Knipling had a large part in the development and adaptation of the insecticides and repellents used during the war and was awarded the medal of the United States Typhus Commission.

Livingston Joins Penick

Arnold M. Livingston has been appointed sales assistant in the insecticide department of S. B. Penick & Co., New York, producers and manufacturers of botanical drugs and medicinal chemicals. Mr. Livingston is a graduate of Alfred University and prior to his connection with the Penick firm, he served for three and one-half years in the U. S. Navy, attaining the rank of Lieutenant, Junior Grade.

Federal Varnish Expands

The Federal Varnish Co., Chicago, manufacturers of varnishes, floor finishes, waxes and sealers, have moved into new, larger quarters, combining their two plants under one roof. The new plant, located on South Ashland Ave. at 29th St. features a modern layout with both control and research laboratories. Shipments can be made by truck, rail, or boat. The offices are air conditioned and the plant is spacious and efficiently planned to eliminate crowding. Special attention is paid to proper lighting facilities, rest and recreation rooms, showers, and other conveniences. While not all manufacturing equipment has been completely installed for full operation, work is progressing rapidly, and production facilities will soon be at their maximum.

York's New Address

Through an oversight in our September issue, we gave the former New York address in the York Chemical Company advertisement instead of that of the new Brooklyn plant at 23 Dean Street.

333
NEW PROCESS
WAX

NO RUBBING—NO POLISHING

An Extraordinary Wax At a Price That Will Please You

This wax is the result of intensive laboratory research, skill, formulation and extensive testing. It is not a synthetic product . . . 333 Wax is composed of vegetable wax treated by our new process and liberally fortified with Carnauba Wax.

It has excellent luster, wear resistance and washes unusually well. 333 will give genuine satisfaction to your customers and build a big volume of wax business for you.

Send for Sample — FREE

FEDERAL VARNISH DIVISION
FLOOR FINISH DEPARTMENT
Enterprise Paint Manufacturing Co.
DEPT. 1146 S. ASHLAND AVE. at 29th ST.
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MACKENZIE DETERGENTS

METASIL
Sodium Metasilicate, penta hydrate
Granular or Regular Grind

TRI-MET
Mild, general household cleaner for painted surfaces in one application. Needs no wiping or rinsing. Fine, white, free-flowing TRI-MET is an excellent substitute for Tri-Sodium Phosphate in household compounds.

DISHWASHING COMPOUND
(Pink or White)
Built to Government specifications for machine dishwashing.

CONCENTRATED SOAP POWDER
Type 1 For laundry
Type 2 For hand dishwashing

HAND CLEANER
Powdered — in bulk or shaker containers

METAPLUS
For general industrial cleaning

DRIVEWAY CLEANER
For driveways, runways, garage and factory floors, grease pits, etc.

We are basic manufacturers, and our products are currently available in carlots.

MACKENZIE LABORATORIES, Inc.
Front and Yarnall Streets, Chester, Pa.

NAIDM Board Meets

The board of governors of the National Association of Insecticide & Disinfectant Manufacturers met at the Hotel Mayflower, Washington, D. C., in late September to lay plans for the coming annual meeting at the Hotel Commodore, New York, Dec. 2, 3 and 4. Dates and places were also tentatively confirmed for future conventions as follows: 1947 mid-year meeting, Edgewater Beach Hotel, Chicago, June 9, 10 and 11; Hotel Baltimore, Baltimore, Dec. 1, 2 and 3, 1947. It is anticipated that the 1948 annual meeting will be held in Washington, D. C., December, 1948.

Jack Varley, chairman of the Disinfectant Scientific Committee, reported that a special committee is conferring with the U. S. Department of Agriculture and the Food and Drug Administration to perfect a new method of testing quaternary ammonium disinfectants to replace the phenol coefficient method.

John Powell of John Powell & Co., association secretary, reported the following new members since the June meeting: Nuodex Products Co., Elizabeth, N. J.; Kinetic Chemicals, Inc., Wilmington; Pest Control Chemicals Co., Buffalo; Radbill Oil Co., Philadelphia; and Cartier Chemical Co., Lachine, Quebec.

Dry Mop Makers Meet

An informal meeting of members of the Dry Mop Manufacturers' Association, a branch of the American Brush Manufacturers' Association, was held Oct. 18th at the Hotel Pennsylvania, New York. Otto Schaeffer, Tu-Way Products Co., Detroit, acted as chairman and Barbara Stillbach, Howard Dustless Duster Co., Boston, was secretary. Availability and price trends of raw materials and finished products were discussed. The main purpose of the meeting, however, was to discuss ways and means of eliminating unethical practice and violations of the Robinson-Patman Act. The group resolved to act as a unit in fostering fair trade practice and ethics and the suggestion was made to adopt an association seal of approval. No date was set for the next meeting.

Lynch Is Powell Vice Pres.

David W. Lynch has been named a vice-president of John Powell & Co., New York, it was announced this month. Mr. Lynch, who has headquarters in Chicago, was formerly sales representative for the company in the southwest and middle west territories. He will continue to service the same areas for the Powell company.

DAVID W. LYNCH

Acme Chemical Wins Claim

An injunction was recently granted by Federal Judge Wallace S. Gourley to the Acme Chemical Company, Milwaukee, against Israel Dobkin, trading as the Acme Chemical Co., Pittsburgh, enjoining the latter company from selling deodorants or other products under the Acme name. Finding that the use of the trade name constituted unfair competition with the plaintiff, the court directed the Pittsburgh firm to pay the costs of the case. The Wisconsin corporation, however, was found not entitled to damages or an accounting of alleged losses.

Rheem Advances Papas

George J. Papas has been appointed general manager of purchases for the Rheem Manufacturing Company, New York, it was announced recently. He will make his headquarters in New York City and will direct purchasing for the company's eleven plants in the United States. Mr. Papas joined Rheem, manufacturers of steel shipping containers and basic household appliances, over five years ago in Chicago.

P. E. A. Elects Finneman

The second fall meeting of the Professional Exterminators Association, Inc., was held at the Hotel Commodore, New York on October 14th. William Buettner, NPCA secretary, spoke on rodenticides affecting household pests. The following officers were nominated for the coming year: for president, Joseph Finneman, Pest Control Corporation; for vice-president, Jacob L. Huberman, Scientific Exterminating Co.; for secretary, E. T. Thorpe, Tops Exterminating Co.; for treasurer, William Farrell, Effective Exterminating Co.. Board of Directors: Charles Pomerantz, Bell Exterminating Co., Milford H. Ochs, Ozane Co., Raymond Davenport, Davenport Pest Control Co., E. B. Natelson, Lafayette Exterminating Co., Bernard Krinsky, A & B Exterminating Co., and Alfred Friedman, Friedman's Exterminating Co.

In recognition of his outstanding work in connection with mouse mite fever, Mr. Pomerantz was voted the association man of the year and it was determined that he would be the guest of honor at the association's forthcoming annual dinner.

Westvaco New Product

Westvaco Chlorine Products Corporation, New York, has completed facilities for substantial production of hexachlorcyclohexane at its South Charleston, West Virginia plant. Quantity production is expected to be attained about January 1st, 1947. Technical data about the products and information on experimental results may be secured through Insecticides and Fumigants Division, Westvaco Chlorine Products Corporation, 405 Lexington Ave., New York 17, N. Y.

Baker Builds New Unit

Another unit for the organic chemical division of the J. T. Baker Chemical Co. has just been erected at Phillipsburg, New Jersey. The new building, will be used for the manufacture of a new group of organic chemicals now in the pilot-plant stage. These new products will be in addition to DDT, 2,4-D and CTAB also produced at Phillipsburg.

ITALIAN PUMICE

All Numbers In Stock

CHARLES B. CHRYSTAL CBC MINERALS-CLAYS-COLORS 1897 NEW YORK

Talc — Clay — Silica — Tripoli

Volcanic Ash — Bentonite

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What you have been waiting for!

LIQUID NO RUBBING

Heavy Duty — Waterproof

FLOOR WAX

IN ACCORDANCE WITH FEDERAL SPECIFICATION P-W-151A.

1. **BEAUTIFUL HIGH GLOSS**
2. **SLIP PROOF**
3. **SELF LEVELING**
4. **WATERPROOF**
5. **ECONOMICAL**

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BULK — PACKAGE — PRIVATE LABEL WORK

DESCRIPTIVE LITERATURE UPON REQUEST

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PEST CONTROL OPERATORS AND JOBBERS

CERTOX Insecticides

(Reg. U. S. Pat. Off.)

DDT 30% Concentrate Oil Soluble

RODENTICIDES Made With Antu

DDT 25% Water Soluble

RAT GLUE BOARDS

Write for complete price list today

YORK CHEMICAL CO.

Suppliers of Complete Exterminating Chemicals

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Available in 6"-8½"-12" and 18" Widths

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POTDEVIN

Explain DDT Use

A recent guest of radio station WMCA on the Susan B. Anthony program was H. H. Feller, president of Feller-Jones Corporation, New York. Mr. Feller took the opportunity to clear up for the public a number of misunderstandings concerning DDT. The Feller-Jones Corporation prepared a bulletin entitled "The ABC of DDT" which was offered to give further details on the uses of DDT to WMCA listeners.

Meinhardt Para Plant

J. A. Meinhardt & Co., Chicago, expected to start construction at Yorkville, Ill., early this month of a new plant for production of paradichlorobenzene. Occupying a 5-acre tract, the Meinhardt factory will be a two-story concrete and brick building on the banks of the Fox River. It will be served by the Burlington R.R. Equipment, for which final orders were placed at the National Chemical Exposition in Chicago last month, will include five chlorinators with a capacity of 550 gallons each, which will provide a total daily capacity of 33,000 pounds of para. By-products will include orthodichloro-benzene and about 8,000 gallons a day of hydrochloric acid. Production is expected to get under way at Yorkville early in 1947. Other operations of the company will continue in the Chicago plant as in the past.

Hyman Leaves Velsicol

Dr. Julius Hyman, formerly executive vice-president of Velsicol Corporation, Chicago, in September severed his connection as an officer of the organization.

Dubois Joins Fuld

Fuld Brothers, Inc., Baltimore, announced November 1st that Adrien S. Dubois is now a member of the Fuld organization. Mr. Dubois was formerly associated with Onyx Oil & Chemical Co., Jersey City, N. J.

Western Brush 50th Year

Western Brush and Supply Co., Wichita, have announced the celebration of their fiftieth year in the manufacture and distribution of sanitary maintenance supplies and equipment. The firm was established in 1896 by S. M. Zelinkoff. They market, in addition to brushes, a line of polishes, deodorants, waxes, soaps, disinfectants, and insecticides.

C. LLOYD FISHBECK

Fishbeck Rejoins Dreyer

P. R. Dreyer Inc., importers and specialists in the essential oil and aromatic chemical field, announce the return of C. Lloyd Fishbeck to their sales staff. Mr. Fishbeck was recently discharged from the army after 18 months service which included overseas duty in the Corps of Artillery with the 88th division in the Trieste area of Italy. Prior to his entry into the army, Mr. Fishbeck had been with the Dreyer organization for eight years and in the essential oil field since 1936.

Reid Labor Parley Delegate

Thomas R. Reid, director of human relations for McCormick & Co., Inc., Baltimore, was a member of the U. S. delegation to the twenty-ninth conference of the International Labor Organization which convened in October at Montreal.

Chicago Rodent Ordinance

Chicago passed a new city ordinance in September requiring the rat proofing of all new construction hereafter and the rat stopping of existing structures, in line with the recent recommendations of a U. S. Public Health Service survey report.

Eastern Penn PCA Meeting

The Eastern Pennsylvania Pest Control Association's fall meeting was held, September 10th at the Hotel Redington, Wilkes-Barre, Pa. and was highlighted by a talk on "What Price Haste" by William O. Buettner, secretary of the NPCA. Mr. Buettner emphasized the importance of safety in pest control operations and also paid tribute to the late John T. Kavanaugh who lost his life recently during the course of an industrial fumigation. The Association was complimented on its efforts to introduce a short course at Penn State College. The entire group expressed their desire to have the 1947 convention in Philadelphia.

Rochester Germicide Moves

Rochester Germicide Co., Rochester, will move shortly to a new factory recently acquired at 333 Hollenbeck St., Rochester. The new plant will permit expanded operations, it is reported.

Bakery Sanitation Course

Latest methods for controlling rodents and insects in bakeries were the subject of a five-day course in bakery sanitation conducted by the American Institute of Baking at the Hotel Sherman, Chicago, Nov. 4 to 8, under the direction of Dr. Edward L. Holmes, the Institute's director of sanitation. Among featured speakers was George W. Larrick, assistant commissioner of Foods and Drugs, Washington, D. C., who explained the Food and Drug Administration's present and future position on bakery sanitation. Representatives of the U. S. Public Health Service and the federal Fish and Wild Life Service, also participated, along with entomologists and baking industry leaders.

Johnson Holds Wax Prices

Despite the fact that price controls were removed last August from some types of household wax polishes, S. C. Johnson & Son, Racine, Wis., have announced that there will be no increase in the prices of Johnson's wax polishes at this time. The company reported that due to increased sales they would be able to absorb the increase in costs.

Wm. Diehl & Co.

SHELLAC
Refined Bleached — Orange

CANDELILLA WAX

OURICURY WAX

CARNAUBA WAX and
High M. P. Substitutes

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WIZO
RAT GLUE BOARDS

NO POISON . NO BAIT!

A practical and modern way to rid buildings of rodent pests! No hazards of poisoned bait . . . or of decomposition! Easy to prepare! Just place WIZO Rat Boards near rat hole or from a runway next to walls. Fasten boards to floor to prevent pulling away. Rodents are caught firmly the moment they step on the boards.

WIZO RAT GLUE can be obtained separately for preparing your own boards.

Write for catalog and prices on complete line of Deodorants and Insecticides.

ELKAY PRODUCTS CO.
323-27 West 16th Street New York 11, N. Y.

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HIGH MELTING POINT
MICRO-CRYSTALLINE
PETROLEUM WAXES
in ***POWDER FORM***

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NPCA Meets In New Orleans; Elects Sturgeon New President

OVER 600 pest control operators attended the 14th annual convention of the National Pest Control Association held at the Hotel Roosevelt, New Orleans, October 28, 29, and 30. A series of symposia made up the main body of the three-day program in which were included numerous well-known authorities from both government and industry. At the close of the three-day meeting, J. Harvey Sturgeon of Sturgeon Pest Control Co., Louisville, Ky., was elected president to succeed Theodore Oser of the Orkin Exterminating Co., Atlanta, Ga. The Association voted to hold its 15th annual meeting in 1947 in Philadelphia.

A symposium on rodent control was presided over by Martin T. Meyer of Theodore Meyer Est., Philadelphia. Among the speakers were Asst. Surgeon General C. L. Williams, USPHS, Harold E. Jennings, H. O. Abel, L. S. Bridges, John Wiley and Justin M. Andrews, USPHS, Justus C. Ward, and William O. Buettner. Wood destroying organisms was the subject of another symposium presided over by George L. Hockenyos of Springfield, Ill. Speakers included W. E. McCauley, J. Wilfred Gunn, Charles Denny, Maurice Baille, Wayne K. Davis, F. K. Harder, Herbert Mayer, Bernard Kolkana, and J. L. Howell. Dr. James C. Munch of Upper Darby, Pa. also spoke on "Antidotes, with emphasis on new chemicals."

A full session on Oct. 29 was given over to a symposium on general industry problems over which William O. Buettner, national secretary, presided. Dr. John T. Creighton and Theodore Oser spoke on legislation. Insurance was covered by David Weisburger and John Vogel, safety program by J. Edward Sameth, equipment by Robert Couhig, job charges by D. P. Alindin, application procedures by A. M. Akers, office methods by J. J. Hess, V. H. Montgomery, J. R. Franklin, travel and transportation by F. E. Bohman.

An open forum on fumigation trends and problems was conducted under the leadership of Bartlett W. Eldredge, Waltham Chemical Co., Waltham, Mass., and former MPCA president. Mr. Eldredge opened the discussion with an address on "Unusual Accidents" in fumigating. "The Use of Two or More Fumigants in Combination" was the subject of an address by Dr. George H. Chapman of American Cyanamid. An address by Prof. J. J. Davis of Purdue University, dealt with "Postwar Insect Problems."

An exhibit of products and equipment was held in conjunction with the NPCA meeting. Among the exhibitors were the following: Banta & Driscoll Co., Compton, Calif. with C. S. Banta in charge; Chapman Chemical Co., Chicago, with Robert Harnden, C. F. Grafton and Thomas Forshaw; Lofstrand Co., Silver Springs, Md., with H. Sherwood Shinn; American Cyanamid Co., with Dr. G. H. Chapman, B. C. Culver, and E. D. Wilber; E. I. Du Pont de Nemours & Co., with E. H. Rieman; Sennewald Drug Co., St. Louis, with E. F. Sennewald; John Bean Mfg. Co., Lansing, Mich., with R. S. Bone; Associated Chemists, Inc., Chicago, with Arthur Srebren and T. Weiss; Mine Safety Appliance Co., Pittsburgh; Sprayer Corp. of America, Chicago, with W. Grant Breuer; Per-Mo Products Co., Kansas City, with O. S. Schaffer; Hudson Mfg. Co., Chicago, with David Lewis; Wil-Kil Co., Milwaukee, with Henry Turrie; Elkay Products Co., New York, with Sidney and Samuel Piller; R. J. Prentiss & Co., New York,

(*Turn to Page* 169)

N.S.S.A Regional Meetings

TWO regional meetings of the National Sanitary Supply Association were scheduled during November. The southern regional meeting was held November 4th and 5th at the Henry Grady Hotel, Atlanta. Garnett Carter, national vice-president of the American Institute of Banking, associated with the Fulton National Bank, Atlanta, gave a talk on the economic future of the south. Stafford W. Graydon, public health engineer of the city of Atlanta spoke on health laws and the cooperation of local health authorities with sanitary supply jobbers. Fred B. Moore, manager of the Rhodes-Haverty building in Atlanta gave his views on what building managers want in the way of supplies and service from sanitary supply jobbers.

The Western regional meeting was to be held November 15th and 16th at the Whitcomb Hotel, San Francisco. Jack Varley, Baird & McGuire Inc., St. Louis, and Leo Kelly, national secretary of the NSSA, were to speak on Friday, distributors' day. That afternoon, panel discussions were scheduled on sales problems and accounting procedures. On Saturday morning, manufacturers' day, discussions were to be held on such subjects as the paper situation, the metalware picture, brush and broom future, soap situation, future of synthetic detergents, and quaternary disinfectants.

On December 5th, the eastern regional meeting will be held at the Hotel Commodore, New York. Martin Peters of Moore Bros., is acting as chairman. No program for this meeting has yet been announced.

At the conclusion of each of these regional meetings, it is expected that a national over-all picture of the needs and desires of the entire membership can be compiled to form the basis of a constructive program which can be presented at the national convention of the association to be held in Chicago, April 21-25, 1947 at the Morrison Hotel.

THE VANDERBILT LABORATORY

EAST NORWALK, CONN.

To Our PYRAX Customers

We have expanded our plant and are now producing more PYRAX ABB than ever before.

But we still cannot make enough to fill all of your orders in any one season.

To avoid disappointment and to insure satisfying your 1947 requirements, we urge you to schedule your needs well in advance, to order early and to take delivery of at least part of your order during the Winter season.

We will appreciate your cooperation.

R. T. VANDERBILT CO., Inc.
Specialties Dept.
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SAFEST MOST EFFECTIVE SANITIZER

IDEAL FOR RESTAURANT AND SODA FOUNTAIN USE

GERM-I-TOL

A highly potent sterilizer and powerful deodorant, Germ-I-tol is odorless, tasteless and non-toxic in recommended strengths. It is easy to use and absolutely safe—contains no iodine, phenol or mercury. SANITIZES COLD.

ANOTHER VERSATILE DISINFECTANT:
OCTYL RESORCINOL . . . has a phenol coefficient of approximately 280. Compatible with soap.

DOZENS OF OTHER USES . . . SEND FOR FOLDER

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All fibre or fibre body with metal ends.
Available in a wide range of sizes and colors.
Plain or labelled.
Your inquiries welcomed, large or small.

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Almost a Half Century in Cincinnati

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factory and warehouse will be ready January 1947. Prepared to purchase outright in car lots. Dealers now being appointed across Canada. All replies confidential. We will bear strict investigation. Address Box 605 c/o *Soap & Sanitary Chemicals.*

Manufacturers Representatives offer sales representation in Florida, Georgia and Alabama. Manufacturers inquiries welcomed. Thomas-Phillips Distributors, Box 757, Tallahassee, Florida.

Will Furchase for cash all your reformed, reconditioned, obsolete and surplus stocks of crown bottle caps or screw caps for immediate shipment. Canal Industries, Inc., 122 S. Michigan Ave., Chicago, 3, Illinois.

Wanted: Book—Modern Soap Making by Thomssen and Kemp. Will gladly pay premium. Address Box 606 c/o *Soap & Sanitary Chemicals.*

To All Manufacturers: If you are interested in having your materials sold in Florida get in touch with us. This is a new sales organigation and we call on wholesale and retail trade. Address Box 607 c/o *Soap & Sanitary Chemicals.*

Wanted: Dry Powder Sifter and Mixer. Capacity about 500 gallons. Prefer J. H. Day. Will consider any make—with or without motor. Address Box 604 c/o *Soap & Sanitary Chemicals.*

Wanted to Purchase: 50 to 100 gallon capacity grease mixing tank. Must be geared driven—no pulleys. Either turbine or paddle type. Give complete specification and price. Zeen Chemical Co., 2000 Elm St., N.W., Cleveland, 13, Ohio.

N.P.C.A. MEETING

(*From Page* 161)

with Helena Whalen; Besler Corp., Emeryville, Calif.; B. & D. A. Weisberger, Inc., New York, with David Weisberger; Abt Studios, Memphis, with Mrs. M. F. Abt; Hill Termite Control System; John Powell & Co., New York, with D. W. Lynch, A. L. Lynch and R. N. Cochrane; Cook Chemical Co., Kansas City; Lowell Mfg. Co., Chicago.

Other officers elected are as follows: Regional vice-presidents: H. O. Abel, Abel Exterminating Co., Dallas and Houston, Texas; John G. Vogel, Vogel-Ritt, Inc., Philadelphia; V. H. Montgomery, Montgomery Pest Control Company, San Francisco; Harold E. Jennings, Smithereen Co., Chicago; J. Edwin Sameth, Western Exterminating Co., Newark, N. J.; Glen H. Burnett, Getz Exterminators, Inc., Atlanta.

Secretary: William O. Buettner, Buettner Pest Control Co., Brooklyn.

Treasurer: Robert C. Yeager, Rose Exterminator Co., Cincinnati.

Directors — Three years — 1946-1949: I. B. Carncross, Syracuse Chemical Co., Syracuse, N. Y.; C. C. Delk, Delk Pest Control, Fresno, Calif.; Charles Denny, Charles Denny Co., St. Louis; Louis Gatto, Louis Gatto Co., Beaver Falls, Pa.; Jacques J. Hess, Exterminating Services Corp., New York; Charles Partlow, Reliable Exterminating Co., Lafayette, Ind.; Mark Weintraub, Astor Exterminating Co., Boston. Director—One year—1946-1947: Joseph W. Hahne, Smith Exterminating Co., Omaha.

POTASH SOAP ASSN.

(*From Page* 37)

The board of directors approved the following scale of annual dues for members, based on their sales of potash soaps of all kinds:

For Potash Soap Sales	*Dues will be*
Up to $100,000	$100
Between $100,000 and $250,000	200
Between $250,000 and $500,000	300
$500,000 or more	500

Suppliers to potash soap manufacturers will pay $100 per annum as associate members.

Decontrol Cleaners

On November 1st, OPA announced decontrol of prices on household scouring powders and cleaners because the supply of these products was considered to be in balance with demand. The agency emphasized that such action did not apply to soap and other soap products, and defined the decontrolled products as those containing a maximum of 5 per cent soap and a minimum of 60 per cent mineral abrasive.

Soap Meetings Jan. 14, 15

Annual meetings of the Association of American Soap & Glycerine Producers and the newly formed Potash Soap Association will be held at the Waldorf Astoria Hotel, New York, Jan. 14 and 15. The Potash Soap Association will hold its meeting on Jan. 14, while the A.A.S.G.P. meeting, originally scheduled to be a two day affair, has been shortened to a one day meeting, Jan. 15.

Soap From Surplus Napalm

The Army-developed process for making liquid soap from surplus "Napalm," a gasoline thickener used in flamethrower fuel during the war, is described in Report PB-19494 (photostat, $1 from U. S. Dept. Commerce). The soap is said to lather easily and have no objectionable odor. The report will be reviewed in the December issue of *Soap & Sanitary Chemicals.*

Offer Packaging Service

Harwin Laboratories, Newark, N. J., have announced a new packaging service for the trade. Their facilities make it possible to handle both powders and liquids in either large or small runs for filling, closing, labeling, etc. The company is located at 44 William St., Newark 2, N. J.

N.A.I.D.M. MEETING

(*From Page* 151)

mittee; Dr. Alfred Weed, John Powell & Co., New York, Insecticide Scientific Committee; A. L. Sodergreen, West Disinfecting Co., Long Island City, N. Y., Chemical Analyses-Disinfectant Section; Associate Members Committee, J. B. Magnus, Magnus, Mabee & Reynard, Inc., New York; John H. Mills, Bridgeport Brass Co., Bridgeport, Conn., Aerosol Committee; R. B. Trusler, Davies-Young Soap Co., Dayton, O., Sanitary Specialties Scientific Committee, and C. E. Smith, Socony-Vacuum Co., New York, Sprayer Committee.

Charles Opitz is chairman of the entertainment committee.

The June meeting of the N.A.I.D.M. will be held at the Edgewater Beach Hotel, Chicago, June 9, 10 and 11.

Faster, More Effective Spraying

with

MISTMASTER INSECTICIDE SPRAYER

MOTORIZED spraying of insecticides is not only faster, covering a wider area in less time, but also more effective. Mistmaster Insecticide Sprayer is motorized to give more penetrating, more efficient spraying of insecticides, disinfectants, etc. Unit holds up to 1 gallon of liquid and sprays it 18' to 20'. Shoots with such force as to penetrate all cracks and crevices. Extensively used.

We do not sell insecticides. Our business is the manufacture of Sprayers. (Patented in U. S. A. and foreign countries.)

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". . . dey sold so much dat dey couldn't fill de orders, so dey closed up!"

Sad, but true!

AND what ever became of the Schmaltz Pickle Foundry? Gone? Forgotten? Yes! In flush times when the demand for their hand-forged pickles was double the supply, they thought it would last forever. They forgot to remember to keep reminding the world about Schmaltz pickles, — and unfortunately the world forgot.

Now, we don't know a whole lot about pickle advertising, but when it comes to the field of soap products, household insecticides, disinfectants, cleansers, detergents, and other chemical specialties, we are certain that they will never get a chance to forget you if you advertise regularly in

SOAP *and Sanitary Chemicals*

254 WEST 31st STREET NEW YORK 1

A.B.C. paid subscription renewal rate for year ending October, 1945—88.4%

Tale Ends

SOAP shortage threatens the health of the nation, according to quotes by R. R. Deupree, president of P & G. It does not, retorts "spokesman" for the U. S. Public Health Service who goes on to say that he once knew an Indian who never had a bath in 60 years and was perfectly healthy. Like most doctors,—and we judge that our USPHS "spokesman" is such,—he falls into error in arguing from the specific to the general. He may be right, but his one dirty Indian out of our 140,000,000 population does not prove him so!

* * *

Now that the election is over, we wonder if some of our friends in OPA will read the handwriting on the wall. Or will they still continue to prate of "holding the line" when actually there has not been enough ceiling-priced goods to make "a line" at any time since the war ended.

* * *

Said New York's Governor Tom Dewey campaigning for re-election last month: "Thousands of our people . . . are trying to wash dishes without soap." You picked a poor example in dish washing, Governor. Soap has never been the ideal product for washing dishes, hard water or soft. Institutions, hotels, big restaurants seldom use soap. During the soap scarcity, housewives, forced to adopt soap "substitutes," have found many of them superior for dish and glass washing, especially in hard water.

* * *

Low pressure aerosol insecticides, the so-called "beer can" aerosols, may reach the market by next spring. Shortages of tin plate and the low-pressure propellent gases provide the present question marks. One of the leading metal container suppliers is reported all set to go if sufficient tin plate,—not to mention the propellent and toxics,—is to be had.

* * *

And, putting one word after another, whatever happened to the Soap Industry Advisory Committee?

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"... and what's more, that rig is an insult to my intelligence!"

...no Santa Claus?

SALES success is seldom the result of a visit from Santa Claus. It usually comes to those who plug away month in and year out with regular selling and advertising. That the most successful sales organizations have invariably been the most prolific and regular advertisers is not a coincidence. In advertising, as in selling, there is no Santa Claus. The steady pluggers get the business.

If you have in mind playing Santa Claus to yourself in 1947 in the field of soap and detergent products, household insecticides, floor waxes, and allied chemical specialties, investigate the possibilities of regular advertising in

SOAP *and Sanitary Chemicals*

254 WEST 31st STREET NEW YORK 1

A.B.C. paid subscription renewal rate for year ending October, 1945—88.4%

Tale Ends

SAID a buyer of industrial soap to a soap company salesman last month while the dust and smoke of decontrol still obscured any clear view of the immediate future: "What am I going to be paying for soap next month when the shooting all quiets down?" The salesman answered: "Just about double what you paid before decontrol. But based on tallow prices of the past month, it ought to be higher than that!"

• • •

What a soap shortage will do! Last month, the College of Home Economics at Cornell University, Ithaca, N. Y. issued "a soap recipe" to make soap at home and combat the scarcity.

• • •

Reports have it that a new "Freon" gas, known as "Freon 31," will be brought out late in 1947. The new insecticide expellent is said to be a whiz, having a pressure of only 22 lbs. at 70 deg. and is the answer to the aerosol manufacturer's prayers in a low-cost "beer-can" product. The new gas is reported to be monochlor monofluormethane whereas "Freon 12" is dichlor difluormethane.

• • •

When American glycerine was pegged at 18½c by OPA ceilings and imported glycerine was selling at 70c New York, we wondered what would happen if they took off all price controls. Last month we viewed the answer as American refined glycerine tripled in price over night, but still stood 20 per cent under the imported material.

• • •

Said the newspapers recently: "A 72 year old woman suffered a broken leg in a wild scramble for soap chips in a Binghamton, N. Y. grocery store. Other frantic shoppers leaped over her prostrate form as she lay semi-conscious on the floor in the fight for a package of soap." Which reminds us that some sage once remarked that the status of the civilization of any nation is proportionate to its per capita consumption of soap!